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Philippine Abstracts

A quarterly classified summary of the latest Philippine publications in the field of science and its applications (UDC 5 and 6)

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PHILIPPINE ABSTRACTS

A quarterly classified summary of the latest Philippine publications in the field of science and its applications (UDC 5 and 6)

Vol. 13, Nos. 1-2 **January - June 1972**

PHYSICS

539.12.08 613.6:621.039
Radiation - Measurement.

1. Study of the effects of filters on film badge evaluation (A preliminary report). Norma T. Bustamante and Thelma B. Macalalag (Philippine Atomic Research Center, Quezon City). Manila, Philippine Atomic Energy Commission, April 1971. 20p. graphs, tables. [PAEC (D) 714]

The transmission of beta, gamma and x-rays through different filters in the film badge used in the Philippine Atomic Research Center was studied. The filters used were 2.8 mm thick plastic, 1.3 mm thick Al and 0.78 mm thick Cu. The technique for determining the type of ionizing radiation to which the film was exposed and for distinguishing the dose due to the different sources in case of exposure in a mixed radiation field is discussed. It is suggested that the present film holder be revised such that the filter should be in front of the film holder. The film holder may be made of plastic or any other material that can absorb the secondary emission due to scattering without any additional scattering.

CHEMISTRY

54-4:581.084.1(914)(043)
Indicators and reagents. Plants, Chemical analysis of.

2. Indicators from Philippine plants. Alma V. Cimafranca. Cebu City, Faculty of the Graduate School, University of San Carlos, April 1971. 5ℓ. 50p. graph, tables, diagr. 14 refs. (Thesis. M. S. in Chemistry)

Experiments were conducted to determine the pk of indicators extracted from the flowers, fruits and leaves of 57 plant species. The indicator was best extracted with 96% ethyl alcohol. The pk values of the indicators obtained ranged from 2.2 to 11. Some extracts had 2 pk values which may mean that the indicators present has 2 turning points or that 2 indicators are present with different turning points. Extracts with pk 8 may be used as a substitute for phenolphthalein and those with pk 3 as substitutes for congo red. Indicators with pk 11 may be suitable for testing free alkali on soap. No substitute for litmus paper was suggested.

543.3:546.19(043)
Water - Analysis. Arsenic.

3. Determination of arsenic in acidic waters by the molybdenum blue method. Milagros de los Santos. Cebu City, Faculty of Graduate School, University of San Carlos, March 1971. 7ℓ. 65p. 1ℓ. tables. 17 refs. (Thesis. M. S. in Chemistry)

Water samples from Inas mineral spring, Buhisan, Pawo-o I, Pawo-o II, Napo, Alonso, Mahiga river and Llacuna were analysed. Blank tests confirmed that small amounts of arsenic V in water can be determined by the Mo blue method. However, interference by silica and phosphate was noted but which was eliminated by "pre-acidification" of the

solution to be tested. Arsenic content in the water samples tested ranged from 0.05 to 0.2 ppm which is within the allowable value.

GEOLOGY . METEOROLOGY

550.341
Earthquakes.

4. Notes on the seismicity of the earth quakes of 1 August 1968 and 7 April 1970. Edgar M. Morante (Weather Bureau, Quezon City). *Journal of the Geological Society of the Philippines*, Sept. 1970, v.24, no.3, p.1-29. graphs, maps, tables, diagr. 19 refs.

The development and focal mechanism of the 2 seismic activities in Casiguran and Baler (Quezon) are traced and the resulting observations are correlated with the geologic structures in the area. It is inferred that the general trend of the maximal pressure may be the same stress that brought about the geomorphic features of the Sierra Madre Mountain Range, the bend of the northwestern branch of the Philippine Fault in the Dingalan area and probably the fault controlled trough of northeastern Luzon and the eastwest trough north of Polilio Island.

550.8:526.8
Geological surveys. Maps and mapping.

5. Notes on the mineral distribution map of the Pangaea. Mutsumi Motegi (Technical & Financial Service Corp., Makati, Rizal). *Journal of the Geological Society of the Philippines*, Sept. 1970, v.24, no.3, p.36-40. maps. 4 refs.

Based on the Pangaea map of Dietz and Holden, it is evident that the main metallic elements (Cu, Pb, Zn, Fe and Mn) are concentrated in particularly narrow zones and that the primary distribution of elements are completed in the Pangaea. The deposits in Japan, Philippines, Papua and Solomon Islands could not be plotted because of insufficient basic data. The Pangaea map can be used as a guide in finding new deposits.

550.84
Geochemistry - Exploratory.

6. Geochemical surveying in the light of continental drift theory and ocean floorspreading. Gabriel Santos, Jr. (Philippine Atomic Research Center, Quezon City). *Nucleus*, March 1971, v.9, no.1, p.10-11, 14. graph, maps, diagr. 26 refs.

Studies are being conducted using activation analysis and x-ray fluorescence techniques to compare supposedly continuous regions and the areal mapping of continuity of trace element occurrences, and their relationships to economic mineral deposits. Preliminary results of investigation using activation analysis of beach and river magnetite samples obtained from northern and western Luzon indicated similarity in their Va concentrations. This could indicate that the source area of the beach magnetites are the inland mountain regions being drained by major rivers in Luzon, and that the areas adjacent to the deltas of major rivers and streams in Luzon are the most favorable locations for magnetite placer deposits which are relatively high in Va. There is a possibility of finding other deposits, such as gold, ilmenite and platinum metals in the Luzon areas.

551.217.3
Volcanoes.

7. Mayon mudflows. Justito C. Fernandez. *Comvol Letter*, Jan.-April 1971, v.5, nos.1-2, p.1-8. map. 6 refs.

The mudflow process of the Mayon volcano in Albay is discussed in detail. Conclusions made are based mostly on the concepts of sedimentation and a few fundamentals of soil physics.

551.521.1:551.508.21(914)
Solar radiation.

8. Solar radiation data for 11 years at Los Baños, Philippines in relation to bright sunshine. Geo. W. Robertson. Quezon City, Weather Bureau, Jan. 1971. 50p. graphs, tables. 15 refs. Technical series no. 6)

A technique for determining the rate of deterioration of the pyranometer using observations of bright sunshine is discussed. The study made use of the solar radiation data recorded in April 1959-Oct. 1969 in Los Baños (Laguna), during which time the pyranometer (Eppley 180° type) deteriorated. A correction factor of 1.43 as a function of time was obtained by comparison with daily observations of the duration of bright sunshine. The calculated clear sky transmittance agreed favorably with results of other investigations and with independent calculations based on optical airmass and water vapor pressure considerations.

551.573:551.501(914)
Evapotranspiration - Methodology.
Evaporation (meteorology).

9. An analysis of potential evapotranspiration and evaporation records at Los Baños, Laguna, Philippines. Mariano T. Asuncion. Quezon City, Weather Bureau, Feb. 1971. ix, 117p. graphs, tables. 26 refs. (Technical series no. 7)

Of the different techniques used in the study, the Penman formula was the best empirical method for calculating potential evapotranspiration, giving an estimate of 1.0 which is the closest value of the measured sunken pan and USWB class "A" pan evaporation.

551.578(914)
Rain and rainfall.

10. An analysis of Manila rainfall data. Aida M. Jose. Quezon City, Weather Bureau, Feb. 1971. ix, 120p. graphs, tables. 18 refs. (Technical series no. 9)

Statistical parameters of Manila rainfall were computed and examined using the data covering the period 1965-1969. It was shown that the annual rainfall had poor relationship with any of the months; July to Sept. heavy falls were associated with tropical cyclones and wind discontinuities, and induced southwest flow. The relation of rainfall intensities in Manila with cyclonic positions was found generally consistent with the effect of the distribution of the field of divergence associated with a cyclone and the exposure of the stations to the wind systems involved in the circulation.

551.578(914)
Rain and rainfall. Floods.

11. An analysis of rainfall and floods in the Pampanga river basin (1946-1966). Cipriano C. Ferraris. Quezon City, Weather Bureau, Feb. 1971. xi, 125p. graphs, maps, tables. 16 refs. (Technical series no. 8)

Results of analysis showed that floods occurred after at least 3 successive rainy days resulting in a minimum

areal rainfall of 4 in. About 62% of the flood occurrences were due to typhoons or tropical storms and 38% due to intensification of the southwest monsoon. The tendency for the floods to increase in magnitude in the lower areas of the basin was possibly due to changing soil conditions, river cross-section further downstream, and the combined effects of tidal movements in Manila Bay and flood discharge in the lowland area downstream from Sulipan-Calumpit. The coefficient of discharge ranged from 5 to 130, the maximum flood flows occurring within 20-80.

551.58(914)
Climatology.

12. Climatological observations at the Central Luzon State University. R. C. Undan, P. J. Quines and D. L. Lactaotao (Central Luzon State University, Nueva Ecija). *CLSU Scientific Journal*, Jan.-June 1971, v.7, no.1, p.110-116. tables, diagr. 3 refs.

Data taken in 1967-1971 showed the following average annual values: rainfall, 1956.1 mm; air temp., 26.6°C; wind speed, 3.87 km/hr; and RH, 70%. The average annual pan evaporations for the open rim and sunken pan were 2337.4 and 1979.9 mm, respectively. The data presented may be used in evaluating potential water resources, use and needs in the area, and in other agricultural programs.

553.43
Copper deposits.

13. Geology and mineralization of the Atlas-Cebu disseminated copper deposits. Francisco A. Madamba (Atlas Consolidated Mining and Development Corp., Toledo City). *Philippine Mining Record*, April 1971, v.5, no.5, p.20-24. maps, diagr. 3 refs.

The Cu deposits of Atlas lie in an area close to the southwest plunging Sudlon anticline. Lutopan and the Biga-Barot orebodies which comprise the 1/2 billion tons of Cu ore reserves lie along a north northeasterly trend and occur as 3 parallel lineaments, namely Lutopan-Lantoy, Biga-Barot and Kanapnapan-Luay. The rocks in the district may be divided into meta-rocks diorite and dacite porphyries, and sedimentary rocks. The Cu mineralization in Lutopan and Biga appears to be localized or related to the presence of a biotite diorite host rock, intersection of 2 or more structures and the presence of breccia pipes at or near fault intersections.

BIOLOGICAL SCIENCES

576.8.097:582.282(043)
Soil fungi - Biological assay.

14. Screening of local soil fungi for antibacterial substances. Lucie Maria Mersmann. Cebu City, University of San Carlos, Oct. 1970. 10ℓ. 126p. 1ℓ. 56 refs. (Thesis. M. S. in Biology)

Experiments were conducted on 20 fungi obtained from 27 soil samples collected from Cebu City and environs. Results showed that 10 fungi exhibited antibacterial activity against at least one of the following bacteria: *Staphylococcus aureus, Gaffkya tetragena, Escherichia coli and Aerobacter aerogenes.* No fungi showed action on *Serratia marcescens* and *Pseudomonas aeruginosa.* Morphological characteristics of the fungal cultures are briefly described for possible classification.

576.852.242:615.779
576.852.242.097
Streptomyces - Enzymology.

15. A study of the antibiotic activities of Philippine soil Streptomycetes. Patrocinio Sevilla-Santos and Zosima P. Bernardo (National Institute of Science & Technology, Manila). *Philippine Journal of Science*, June 1969(1971), v.98, no.2, p.115-122. tables. 15 refs.

The activity of 90 *Streptomyces* isolates obtained from 182 soil samples was tested against Gram-positive and Gram-negative bacteria, yeast and yeast-like and filamentous fungi, *Mycobacterium tuberculosis* 607 and Ehrlich's ascites tumor cells. Of the 90 cultures, 30 were inactive and 60 exhibited activity against at least one test organism.

576.852.242.097 615.779
Streptomyces - Isolation & purification.

16. Laboratory screening of local Streptomyces isolates for antibiotic activity against Xanthomonas oryzae (Uyeda and Ishiyama) Dowson and Pyricularia oryzae cav. Patrocinio Sevilla-Santos (National Institute of Science & Technology, Manila) and Wilfredo L. Barraguio (National Research Council of the Philippines, Quezon City). [Manila, 1971]. 18p. graphs, plates, tables. 14 refs. Typewritten.

Of the 272 *Streptomyces* isolates obtained from several Philippine soils, 58.8% showed inhibitory action of varying degrees against *Xanthomonas oryzae* and/or *Pyricularia oryzae*. Of these active isolates, 29 were found promising antibiotic producers and these are considered for further studies. A liquid medium containing sucrose, starch, soybean, NaCl, K_2HPO_4 and $MgSO_4$ was suitable for the production of antibiotic substances by the isolates against *X. oryzae*. No media were found suitable for the antibiotic production against *P. oryzae*.

BOTANY

581.17:634.616
Macapuno - Cytology.

17. Action of the macapuno gene (m) in coconut. I. Effect of coconut milk supplement on cellular behavior of carrot tissue cultures. Gemma P. Deangkinay and D. A. Ramirez (College of Agriculture, University of the Philippines, College, Laguna). *Philippine Agriculturist*, Feb.-March 1971, v.54, nos.9-10, p.391-396. table, illus. 7 refs.

Carrot tissues were grown in White's medium supplemented with milk from normal and macapuno (mutant) nuts. The macapuno milk did not induce the type of cell behavior of the macapuno endosperm in the carrot tissues. The microcells and loss of intercellular adhesion were also not induced in the carrot tissue cultures. Highly unorganized cells were exhibited which may be due to the unavailability of biochemical agents from the normal and macapuno milk supplements. The cytological difference between the normal and macapuno endosperm may be due to the relative contents of cytokinin- and auxin-like substances.

581.19:634.616
Macapuno - Protein content.

18. Action of the macapuno gene (m) in coconut. II. Protein-bound amino acids. Bernardita T. Posa, D. A. Ramirez and Rolando G. Bugayong (College of Agricul-

ture, University of the Philippines, College, Laguna). *Philippine Agriculturist*, Feb.-March 1971, v.54, nos.9-10, p.397-401. table. 12 refs.

The amino acid composition of the solid endosperm of nuts from true-breeding and macapuno-bearing trees, and their hybrids were determined and compared. Identical chromatographic patterns were observed in the parent varieties. The hybrids of the normal and macapuno type of endosperm showed identical amino acid composition. However, the hybrids did not exhibit amino acids which were observed in the parent varieties and vice versa. The study indicates that the action of the gene m does not involve the protein-bound amino acids of the coconut endosperm.

582.26:581.9(914)
Algae, Geographical distribution of.

19. Genus Galaxaura from Puerto Galera, Oriental Mindoro, Philippines. Gavino C. Trono, Jr. and Alejandro E. Santiago (Dept. of Botany, University of the Philippines, Quezon City). *Natural and Applied Science Bulletin*, July-Dec. 1970, v.22, nos.3-4, p.71-85. illus. 19 refs.

Six species found growing in abundance along the shores of Puerto Galera (Oriental Mindoro) are briefly described. Of the 6 species, 2 are sexual forms and 4 are asexual. G. *umbellata* is reported for the first time from Puerto Galera.

582.26(043)
Algae - Ecology.

20. Study on the algal epiphytes of exposed and protected marine waters of Batangas. Dorotea Francisco-Cornejo. Victoneta Park, Malabon, Rizal, Araneta University Foundation, April 1971. 4*l*. 67p. map, table, illus. 24 refs. (Thesis. M. S. in Biology, Major in Botany)

The collection included 37 species belonging to Cyanophyta, Chlorophyta, Phaeophyta and Rhodophyta. The red algal epiphytes were collected from hosts growing mostly on sandy-rocky substrata. The blue-green and green algal epiphytes were found growing in similar substrata but of shallow habitats. The brown algae were mostly attached on other benthic algae along the deeper sandy-rocky substratum of the intertidal zone. Algal epiphytes were less frequently found in turbid and polluted waters, and growth was poor.

582.266.3:581.14
Algae - Development. Growth promoting substances.

21. Effects of gibberellic acid and indole-acetic acid on branching and akinete formation in Cladophora sp. and Pithophora sp. Julia B. Pantastico and Zenaida C. Antonio (College of Agriculture, University of the Philippines, College, Laguna). *Philippine Agriculturist*, Feb.-March 1971, v.54, nos.9-10, p.402-413. graph, tables, illus. 4 refs.

Gibberellic acid (GA) and indole-acetic acid (IAA) were applied at varying concentrations in test tube cultures of *Pithophora* and *Cladophora*. Results showed a significant increase in akinete production in *Pithophora*, while in *Cladophora* more lateral branches developed. It is evident that GA and IAA hasten processes in which the organism is more actively involved, rather than induce new growth patterns or stimulate dormant processes in the system.

ZOOLOGY

593.9:591.12
Echinoderms.

22. Respiration rates of five representative echinoderms and the effect of body size on the metabolic rate of Echinometra oblonga. Armando A. de la Cruz and Augustus C. Mamaril (College of Arts and Sciences, University of the Philippines, Quezon City). *Natural and Applied Science Bulletin,* July-Dec. 1970, v.22, nos.3-4, p.132-138. graphs. 1 ref.

The rate of 0_2 consumption of *Archaster typicus, Echinometra oblonga, Ophiomastix* sp., *Holothuria sanguinolenta* and a crinoid (unidentified) was determined by the Winkler method. The crinoid respiration pattern followed the general rule that organisms with normally high metabolism are less tolerant of 0_2 lack than the sluggish forms, such as *Holothuria* and *Echinometra.* As observed in *E. oblonga,* the metabolic rate slowed down with increasing body size and decreasing 0_2 tension.

594.3:591.3
Snails - Reproduction. Lymnaea rubiginosa.

23. Observations on the life history of Lymnaea rubiginosa Michelin, snail host of Fasciola gigantica, under laboratory conditions. Peter Z. Pasion (Bureau of Animal Industry, Mandaluyong, Rizal). *Philippine Journal of Animal Industry,* First-Fourth Quarter 1967-1969(1971), v.28, nos.1-4, p.57-75. graphs, plates, tables. 21 refs.

Under laboratory conditions, the *Lymnaea rubiginosa* was found to produce as many as 134 egg masses with 5359 eggs, and reaching sexual maturity in 34-57 days after hatching. The life span of the snail varied from 2 to 8 mo. In the Philippines, the early maturity and egg-laying capacity of the snail indicate its potential capability to reproduce and multiply at relatively fast rate under favorable habitats in the field. Thus, the remedial measures in combating fascioliasis should be aimed at eradication of the snail and control of its favorable breeding places.

595.35
Barnacles.

24. A gorgonacean inhabiting barnacle genus Acasta from Cebu. Neon C. Rosell (College of Arts and Sciences, University of the Philippines, Quezon City). *Natural and Applied Science Bulletin,* July-Dec. 1970, v.22, nos.3-4, p.103-112. illus. 10 refs.

A detailed description of *Acasta microforamina* is given. The species was found embedded in the coenenchyme of a plexaurid gorgonarian. It is allied to *A. fenestrata, A. purpurata* and *A. foraminifera* because of the presence of membrane-covered apertures on its compartment.

MEDICAL SCIENCES

PHYSIOLOGY

612.015:611-013.8
Placenta - Physiology.
Amino acids - Metabolism.

25. Electrolyte dependence of amino acid concentration by human placental slices. Alberto G. Romualdez, Jr., Edgardo Celeste and Augusto D. Litonjua (College of Medicine, University of the Philippines, Manila). *Acta Medica Philippina,* ser. 2, April-June 1971, v.7, no.4, p.124-128. graphs, tables.

20 refs.

The effect of medium electrolyte content on the uptake of alpha-aminoisobutyric acid by term human placental slices was studied. Results indicated a direct linear relationship between Na concentration and uptake of the amino acid. The presence of a Na gradient directed intracellularly gave an amino acid concentration above unity, indicating its "active' accumulation. No significant inhibition of uptake was observed when Na was replaced by choline until a medium concentration of Na approached its intracellular concentration (80 meg/liter). Replacement of Na by K inhibited amino acid accumulation. Ouabain (10^{-4}M) in the medium also inhibited this mechanism suggesting a relationship with the 'Na-K pump'. Measurements of ATPase activity in the placenta showed that 12% of the ATPase is ouabain-sensitive. The data indicate that amino acid transport in the placenta is coupled to cation transport mechanism.

612.12/.14(=914)
Blood cells - Analysis.

26. Biochemical polymorphism in Filipino population: 3. Qualitative and quantitative differences in acid phosphatase of red blood cells. P. S. Bayani-Sioson and Racquel G. Zafra. *Acta Medica Philippina*, ser. 2, Jan.-March 1971, v.7, no.3, p.101-106. graph, tables, illus. 10 refs.

Blood analysis was done on 115 males and 82 females aged 18-43 yrs. Qualitative differences in acid phosphatase were determined using the Karp and Sutton method, and quantitative assay by Hopkinson, Spencer and Harris method. 10 phenotypes of acid phosphatase were found, which agreed with the 4-allelic autosomal system suggested by Giblett and Scott. The most frequent type encountered was BR (22.8%) and the rarest type, AR (0.5%). 55.2% belonged to B, BC and BR; no type D was noted. The acid phosphatase assay level ranged from 56.1 to 193.8μmoles of p-nitro - phenol liberated/g hemoglobin in 30 min. The highest mean assay value was for type AC (159.2) and the lowest for type AR (92.9).

612.46:578.084
Kidney concentrating ability.

27. The ground substance of the kidney medulla, its role in concentrating urine. Ernesto S. Rivera, Carlos P. Crisostomo, Serafin J. Juliano and Ricardo L. Alfonso. *Journal of the Philippine Medical Association*, May 1971, v.47, no.5, p.187-202. graphs, tables, illus. 43 refs.

Experiments were conducted on 14 dogs given low protein diet and rendered hydropenic to determine the effect of hyaluronidase in the medullary ground substance of the kidney. It was noted that kidneys injected with hyaluronidase exhibited a definite mucopolysaccharide change, and decreased in Na and urea contents. Loss of the normal osmotic pressure gradient in the tissue which led to formation of hypotonic urine was also observed. It is concluded that primary alteration of the ground substance in the medulla by hyaluronidase results in loss of concentrating power of the kidney.

612.5:616-053.2
Body temperature.

28. Axillary temperature: A safe and convenient method. Isabel F. Franco, Anita Ferrer, Susan Carpo and Zenaida Loza (J. Fabella Memorial Hospital, Manila). *Journal of the Philippine Medical Women's Association*, Jan.-March

1971, v.9, no.1, p.24-25. table. 1 ref.

The rectal and axillary temperatures of 837 children aged 0-12 yrs were compared. 85% showed higher rectal readings by 0.1-0.5°C than axillary readings. No difference between rectal and axillary temperatures was noted in 10.2% of the cases. There was no statistical significance between sexes and age variation. Axillary reading for 5 min and corrected by adding 0.5°C is practical for most purposes and the method is free from such dangers as breakage of thermometer, rectal injury and perforation of viscus.

612.85:575(=914)
Cerumen. Genetics, Population.

29. Cerumen dimorphism in Filipinos - A genetic marker. Pelagia S. Bayani-Sioson (College of Dentistry, University of the Philippines, Manila). *Journal of the Philippine Medical Women's Association*, Jan.-March 1971, v.9, no.1, p.1-4. tables. 11 refs.

A study of the different earwax types of 509 males and 534 females indicated a 46.2% frequency for the wet type cerumen giving a gene frequency of 0.2665; 0.45% had "intermediate" earwax type. Based on the wet type alleles, Filipinos are located among the intermediate populations which give some evidence to the heterogenous origin of the contemporary Filipinos who may differ from other races only in degree due to differences in gene fractions. However, more data are necessary to genetically characterize contemporary Filipinos.

FOOD AND DIETETICS

613.2:612.398(=914)
Dietary proteins.

30. The protein quality of the Filipino diet. Carmen Ll. Intengan and Ceferina G. Marfori (National Institute of Science & Technology, Manila). *Philippine Journal of Nutrition*, Jan.-March 1971, v.24, no.1, p.37-43. tables. 7 refs.

Results of biological tests indicated satisfactory quality of protein in Filipino diets. The net protein utilization value of 63, biological value of 83 and protein efficiency ratio of 2.29 may be used as protein quality indices. The total energy in the average Filipino diet is only 1674 cal as compared to the recommended 2000 cal/capita.

613.2(914)
Plants, Food.

31. Oxalic acid content and its relation to the calcium present in some Philippine plant foods. Leonarda M. Pilac, Isabel Abdon and Erlinda P. Mandap (National Institute of Science & Technology, Manila). *Philippine Journal of Nutrition*, Jan.-March 1971, v.24, no.1, p.21-36. tables. 14 refs.

Of the 129 plant foods analyzed, 21 had a calcium to oxalate ratio of 2 and above with 80% available calcium; 59 contain oxalic acid in excess of calcium; and 49 had a calcium to oxalate ratio below 2, some of which had over 50% available calcium which could be utilized by the body. Foods containing oxalic acid in excess of calcium are good sources of other nutrients in the diet and should not be eaten with calcium rich foods.

PHARMACY . PHARMACOLOGY

615.41(043)
Tablets.

32. Hydrolyzed cereal solids as binding agent in tablet formulations. Mohammad Jawaid Bhatty. Quezon City, Graduate School, University of the Philippines, April 1971. 10ℓ. 213p. graphs, tables, illus. 58 refs. (Thesis. Master of Science, Major in Industrial Pharmacy)

The effectiveness of hydrolyzed cereal solids, cassava starch and coconut flour as binding agents in calcium carbonate, ascorbic acid and sulfathiazol tablets was compared witn corn starch paste 10% W/V. The tablets were prepared by the standard wet granulation method and were compressed on a single-punch tablet press at controlled pressure. It was observed that the physical properties of the tablets were influenced by the nature and concentration of the binding agent. 25% hydrolyzed cereal solid solution was found the best binding agent for the 3 tablet formulations. 10 and 15% cassava starch paste gave better hardness-friabrasion indices than corn starch. Coconut flour seemed to have no adhesive and cohesive properties as indicated by high values of fines and friability obtained in the formulations.

615.5:616-006.6:578.083
Plants, Medicinal. Uvaria rufa.

33. Tumor inhibitors. 1. Alkaloidal constituents of Uvaria rufa Blume. Glory C. Lleander, Alfredo C. Santos, Erlinda H. Salud and Elena C. Rigor (National Institute of Science & Technology, Manila). *Philippine Journal of Science*, June 1969(1971), v.98, no.2, p.151-153. diagr. 3 refs.

The phenolic and nonphenolic fractions isolated by thin layer chromatography from the hexane-extracted marc showed antitumor activity against Ehrlich ascites tumor cells. Crystallization of the product resulted to a sticky mass. The study was temporarily discontinued due to the small yield of alkaloidal fractions obtained.

615.78:578.083/.084
Pentazocine - Pharmacodynamics.
Muscle, Smooth - Drug effects.

34. Basic experimental studies on Pentazocine: I. Smooth muscle pharmacology. Gerardo V. de Leon (College of Medicine, University of the Philippines, Manila). *Journal of the Philippine Medical Association*, April 1971, v.47, no.4, p.166-180. graphs. 26 refs.

Results of *in vitro* and *in vivo* studies indicated the potent relaxant property of Pentazocine in tracheal, uterine and intestinal tissues spasmodically stimulated by various agents. Responses were prompt, predictable and point to dose-dependent phenomena. The drug showed less tendency to cause sedation or drowsiness compared to narcotics and tranquilizers. It is suggested that its antispasmodic effects be evaluated in bronchiolar spasms and selected cases of primary dysmenorrhea.

DISEASES . PATHOLOGY

616-006.6:618.19(=914)
Breast neoplasms.

35. A five-year study of 640 consecutive cases of breast cancer among Filipinos. George Eufemio, Marcelino Fojas, Jr., Mario de Villa, Arcadio Ortiz, Jr. and Benita Javier. *Philippine Journal of Surgical Specialties*, Jan.-March

1971, v.26, no.1, p.181-212. tables, illus. 6 refs.

A review of 640 cases revealed that breast cancer is significantly predominant in females (99.2%) than males (0.8%) and among those 40-50 yrs old. Also, a slightly higher incidence was noted associated with pregnancy and in 84.3% of the cases with breast feeding. 3% of the subjects exhibited cancer in both breasts. Other cases were found associated with benign breast diseases, thyroid diseases and carcinoma in other organs. Majority of the patients required radical mastectomy and postoperative radiation therapy. The advanced cases were subjected to combinations of radiation, hormonal therapy and/or chemotherapy; only a few were amenable to mastectomy alone.

616.34-006:616-07
Cecal neoplasms - Diagnosis.

36. Cancer of the cecum manifested by acute appendicitis. Prudencio S. Samson (GSIS General Hospital, Quezon City). *Journal of the Philippine Medical Association,* April 1971, v.47, no.4, p.155-161. illus. 8 refs.

The case reported was seen in a 21-yr-old married female who showed clinical impression of acute ruptured appendicitis and anemia. Appendectomy revealed the apparent absence of the appendix and instead friable necrotic tissues and yellowish white purulent fluid were removed; also, the cecum was indurated, inflammed and could not be mobilized or exteriorized. Radical right hemicolectomy with primary end to end ileocolostomy was performed 24 days after appendectomy and operative finding revealed a tumor mass of the cecum.

616.35-007(=914)
Rectum - Abnormalities.

37. A study of Hirschsprung's disease in Filipinos: Results of changing the methods of classification, diagnosis and surgical treatment. Roman S. Ibay, Jr. (College of Medicine, University of the Philippines, Manila). *Philippine Journal of Surgical Specialties,* Jan.-March 1971, v.26, no.1, p.223-259. tables, illus. 69 refs.

Based on 7-yr experiences on cases of Hirschsprung's disease, it was observed that the disease as it occurs in Filipinos could be classified into high and low lesions. This classification is important to avoid unnecessary operations, such as colostomy or exploratory laparotomy. Diagnosis can be done by anorectal peristaltic studies. In most cases, the necessity of a pull through operation was obviated since the incidence of high lesion which requires this procedure was lower (14%) than low lesions (86%). The Swenson procedure modified by the addition of posterior partial internal sphincterectomy is recommended only in cases with low lesions when other suggested operations fail. Most cases with low lesions did well immediately after the anorectal operation and others improved a few months later with recovery of colonic peristalsis. It was observed that there is a high incidence of the disease associated with anal stenosis in Filipinos.

616.61-053.2:616-085
Nephrotic syndrome - Drug therapy . Steroids.

38. Comparison of three maintenance steroid regimens in nephrotic syndrome in children. Leticia de Asis-Buenaluz, Cosme R. Cagas, Gabriel Carreon, Rose Macali, Domiciana Dauis-Lawas and Sonia

Buendia. *Philippine Journal of Pediatrics*, April 1971, v.20, no.2, p.43-61. graphs, tables. 38 refs.

Observations were made on 7 cases (5-13 yrs old) with nephrotic syndrome given steroid every other day, and the results compared with those receiving medication daily in divided doses and those given 3 divided doses for 3 consecutive days. Results showed that the drug given every other day was as effective as when given under the 2 other regimens. The side effects were minimal. Growth was normal and the hypothalamic-pituitary adrenal function was excellent. Steroid given every other day is recommended in long term maintenance therapy of childhood nephritis.

616.71-089.8
Arthrodesis.

39. Shoulder arthrodeses: A study of 20 cases. Vicente P. Pido (St. Mary's Hospital, Iloilo). *Journal of the Philippine Medical Association*, April 1971, v.47, no.4, p.162-165. tables. 8 refs.

The results of shoulder fusion done in 20 patients are discussed. Extra-articular combined with intra-articular fusion was done in 11 cases with poliomyelitis, and in 9 cases with tuberculosis of the shoulder, tibial graft across the fusion site was done. Based on the functional results, x-ray appearance and maintenance of position, the shoulder fusion done was good in 15 and fair in 4 cases; only 1 case had poor results.

616.831-053.2:616-06(=914)
Brain diseases - Complications.

40. Reye's syndrome in a Filipino child. Hilario S. Esguerra, III, Ramon L. Arcadio, Carmencita D. Lara and Benjamin D. Canlas, Jr. (UP-PGH Medical Center, Manila). *Journal of the Philippine Medical Association*, April 1971, v.47, no.4, p.145-154. illus. 32 refs.

The first case of Reye's syndrome in a 4-yr-old male is reported. The case differed from those described in literature by the association with marked thrombocytopenia.

616.858-085
Parkinsonism - Drug therapy.

41. Parkinsonism in the Philippines: Treatment with L-dopa. Alfredo R. A. Bengzon (College of Medicine, University of the Philippines, Manila). *Journal of the Philippine Medical Association*, March 1971, v.47, no.3, p.99-111. table. 36 refs.

Observations were made on 15 cases of Parkinsonism treated with L-Dopa. In 11 cases under maintenance optimum doses, the duration of L-Dopa treatment ranged from 6 to 29 wks and the effective oral therapeutic dosage ranged from 40 to 100%. In 4 cases in whom optimum doses were being determined, apparent improvement was noted in 3 cases, although it could not be ascertained whether the improvement would persist or not. In 13 of the patients, one or more transient clinical or laboratory side effects were noted.

616.988.21(914)
Rabies.

42. Rabies in the Republic of the Philippines: Its epidemiology, control and eradication. Primo V. Arambulo, III and Salvador H. Escudero, III (College of Veterinary Medicine, University of the Philippines, Quezon City). *Journal of the Philippine Medical Association*, May 1971, v.47, no.5, p.208-221. map, tables. 36 refs.

Rabies is both enzootic and endemic. So far, it is confined only to

dogs; however, because of the local presence of potential wildlife reservoir, and the dynamic and changing pattern of rabies organism in adapting itself in new host spectrums, the disease may establish itself in wildlife hosts if the present trend of the disease is unabated. Rabies is preponderant among school age children and adolescents, giving a mortality rate higher than poliomyelitis, whooping cough and typhoid fever. A crash program of vaccination of at least 80% of the total dog population and elimination of stray dogs should be conducted to control and eradicate rabies.

616.995.1:595.77(914)
Filariasis - Occurrences.
Mosquitoes.

43. Vector determination for Malayan filariasis in Bongao, Sulu: The second endemic focus for the disease in the Philippines. Benjamin D. Cabrera (Institute of Public Health, University of the Philippines, Manila). *Acta Medica Philippina,* ser. 2, Jan.-March 1971, v.7, no.3, p.95-100. map, tables. 7 refs.

A survey revealed 79,377 mosquitoes belonging to 5 genera and 31 species. 22% of the mosquitoes identified were *Mansonia uniformis* and 10% were *M. bonneae* and it is concluded that these 2 species are the vectors for Malayan filariasis in the area. These species when coexistent could equally and efficiently promote the development of *Brugia malayi* larvae, such that both species play equal roles in the transmission of Malayan filariasis.

616.995.42-085
Ascariasis - Drug therapy.
Enterobius.

44. The treatment of ascariasis and enterobiasis with Piperazine combined with Tyloxapol. Edita G. Garcia and Nonette L. Jueco (Institute of Public Health, University of the Philippines, Manila). *Acta Medica Philippina,* ser.2, Jan.-March 1971, v.7, no.3, p.107-111. tables. 15 refs.

Results of the study showed that the addition of Tyloxapol to Piperazine significantly improved the therapeutic efficacy of the drug. Cases of ascariasis treated with a single dosage of Piperazine with Tyloxapol gave as much as 82.02% cure rates. In cases of enterobiasis, 2 doses of the concentrate with Tyloxapol gave 81.67% cure rate. Side effects, such as nausea, vomitting and dizziness, were noted in 6.7% of the cases.

OPHTHALMOLGY

617.71:578.084
Cornea - Cytology.

45. Prolongation of biological survival in storage of rabbit corneal endothellium. Geminiano de Ocampo, Evangeline O. Olivar, Jaime V. Lapuz, Jesse de Leon and Rosalita G. Vizconde (Philippine Eye Research Institute, University of the Philippines, Manila). *Philippine Journal of Surgical Specialties,* Jan.-March 1971, v.26, no.1, p.213-222. graph, tables. 7 refs.

Experiments with rabbit corneas showed that PERI Formula '70 prolonged the biological survival of 75% of the endothelial cells for 4 wks when stored at 4°C. The formula consisted of phosphate buffered with 10% glycerine at pH 7.01 and with added 3% glucose, 0.1%

amino acids and O_2.

OBSTETRICS

618.3
Pregnancy.

46. The teen-age primigravida. G. P. Camaya, A. Lim and R. S. Chikiamco (FEU-Dr. Nicanor Reyes Medical Foundation, Manila). *Journal of the Philippine Medical Association,* Feb. 1971, v.47, no.2, p.70-73. table. 4 refs.

A study of 145 cases (12-19 yrs old) seen at the FEU Hospital is reported. There was a high incidence of prematures, with birth weights ranging from 500 to 2500 g. Some of the complications encountered were toxemia, mild and severe pre-eclampsia, premature rupture of the membrane and intrauterine fetal death. The most frequent complications from delivery *per se* were lower birth canal laceration and uterine atony. No serious maternal morbidity and congenital anomalies were observed.

618.3:616-006
Pregnancy complications - Diagnosis.
Neoplasms.

47. Tumor previa - a seven year survey at the Maternity and Children's Hospital. Tagumpay B. Esguerra, Rutillo M. Chaves, Florentino T. Santos, Salud B. Confesor and Remedios P. Reyes (J. Fabella Memorial Hospital, Manila). *Journal of the Philippine Medical Women's Association,* Jan.-March 1971, v.9, no.1, p.13-20. tables. 12 refs.

Sixteen cases of tumor previa were analyzed out of 125,630 deliveries. The symptoms indicated were pressure effects of the mass, common complaints of gestation, premature rupture of the bag of water, severe hypogastric pain and bleeding. Dermoid cyst was the most frequent tumor encountered. A higher incidence was observed among the younger age group below para 5. There was only one mortality in the series.

VETERINARY MEDICINE

619:616.986.7:636.4(914)
619:616.986.7:636.293(914)
Leptospirosis. Swine - Diseases and pests.

48. Studies on leptospirosis in the Philippines. Teodulo M. Topacio, Estela G. Famatiga and Milagros H. Suva. *Animal Husbandry and Agricultural Journal,* Jan. 1970, v.5, no.1, p.12-14, 16. tables. 5 refs.

Of 345 kidneys of pigs from Manila and various provinces, only one from Occidental Misamis was found positive for leptospirosis. On the other hand, the 72 carabao kidneys from Luzon and Visayas yielded negative results. The porcine isolate was identified as *Leptospira pyrogenes* by the WHO/FAO Leptospira Reference Laboratory, Walter Reed Army Institute of Research (Washington,DC) and by the National Institute of Animal Health (Tokyo).

619:616.993:636.5 636.5.089
Leukosis complex, Avian.
Poultry - Diseases and pests.

49. Marek's disease - symptoms of the disease & caused damage. *Animal Husbandry and Agricultural Journal,* Jan. 1971, v.6, no.1, p.19.

Marek's disease is found in chickens and is subdivided into classical and acute diseases. The classical type is characterized by an affection of the nervous systems of the wing and legs and the most common symptom is paralysis. The main symptoms of acute type are the unlimited growth of tumor tissues in the

liver, spleen, kidneys, ovary, muscles and skin of the affected birds. Experiments showed that Marek's disease is infectious and is transmitted to other chickens through inhalation and not through the eggs. It is recommended that a day-old chick be given vaccination to minimize the spread of the disease and to insure more production of birds.

619:636.293:616.5-00(043)
636.293.089(043)
Carabaos - Diseases and pests.

50. Skin lesions of Philippine carabaos. Erlinda A. Macarandang. Quezon City, College of Veterinary Medicine, University of the Philippines, April 1971. 1ℓ. 32p. table, illus. 21 refs. (Thesis. Doctor of Veterinary Medicine)

Of 250 slaughtered carabaos examined, only 2 young males had no discernible skin lesions, whereas all females had various skin disorders. In 49 carabaos with skin lesions, the following were observed: 1) transverse cracks and crevices with moth-eaten appearance of the hoof attributable to *Booponus itonsus*; 2) tumor-like masses with slight inflammatory changes; 3) hyperkeratinized, depigmented, hairless areas with acute and chronic inflammatory lesions; 4) areas of encrustations with folliculitis and parasitism; and 5) hemorrhagic nodules which revealed nematodes and microfilariae.

ENGINEERING

621.039.8.002:546.18
Phosphorus - Isotopes.
Radioactive tracers.

51. Incorporation of phosphorus-32 in commercial superphosphate. Linda G. Lumba (Philippine Atomic Research Center, Quezon City). Manila, Philippine Atomic Energy Commission, May 1971. 6p. table. 3 refs. [PAEC(D) 715]

A simplified method of preparing P-32 labeled superphosphate is described. No significant effect on the labeling efficiency was observed in different solvents for initial dissolution of superphosphate. It is believed that the labeling efficiency is dependent only on the relative number of P-31 and P-32 stems in the labeling mixture. The labeling efficiency increased with increasing P-31 to P-32 ratio.

621.317.4
Magnetic surveying.

52. Notes on the magnetometer survey in the Cavite-Batangas-Laguna area. Juanito C. Fernandez and Pedro S. Estupigan (Bureau of Mines, Manila). *Journal of the Geological Society of the Philippines*, Sept. 1970, v.24, no.3, p.30-35. graphs, map.

Correlating the magnetometer survey data with field observations, it is shown that the anomalies are generally caused by rocks of intermediate to basic composition. These rocks are either apophyses, intrusives of flows within relatively non-magnetic tuff and scoria. The intensities of the amplitudes, considering survey and interpretation errors, appear proportional to the depth of burial that varies from 60 to 700 m. In certain cases, strong negative amplitudes are apparent and are believed to be deviations from the earths normal field, thus reversed polarizations are inherent in places.

Other prominent magnetic features are the linear and kink patterns of the iso-gamma lines suggesting faults. These fractures, generally, have influenced the emplacement of the magnetic rocks. Authors Conclusion

624.072.33.042:681.142
681.142:624.072.33.042
Buildings - Earthquake effect.
Computers - Structural engineering applications.

53. Seismic analysis of multistory framed buildings using a desk-top electronic computer. Fiorello R. Estuar and Romeo K. Cachuella. *Philippine Architecture, Engineering & Construction Record,* April 1071, v.18, no.1, p.33-50. illus. 7 refs.

The study made use of the 64-lb Olivetti Programma 101. The program developed covers only the analysis of moment-resistant space frames subjected to earthquake loads. The effect of frame rigidity in the distribution of direct and torsional shears was considered, and the "Factor Method' was used in the frame analysis. Similar programs can be developed to analyze frames under vertical loadings.

A summary of the theory in the program is outlined and the programming techniques involved are discussed.

625.142:674.03
Railroad ties.

54. Wooden railway ties: Their advantages over steel and concrete. College, Laguna, Forest Products Research & Industries Development Commission, May 1971. 3p. table. 7 refs. (Technical note no. 105)

Studies conducted by the FORPRIDECOM, and Philippine National Railways (Manila) showed that cresote pressure-treated apitong ties could be expected to equal the service life of untreated molave or yakal ties. The apitong ties were provided with metal-base plates at the railseat to increase the bearing area subjected to stresses and variable loads, and to prevent railcutting of the ties. It is believed that the use of treated ties will prove more economical than the already diminishing naturally durable wood species. The naturally durable species now presently used are molave (*Vitex parviflora* Juss), dangula (*Teijs manniodendron aherianum* Merr.), ipil (*Intsia bijuga* Colebr.) and yakal (*Shorea astylosa* Foxw).

625.736:624.159.3 625.736:625.77
Slopes. Vegetation.

55. Methods of slope stabilization by use of vegetation. Hans-Joachin Weidelt. *Reforestation Monthly,* May-June 1971, v.10, nos.17-18, p.6-7, 18-22. illus.

The different methods of stabilization described are applicable to slopes up to 50° or 55°. Of the 4 types of "live structures", the brush cover and benched brush layer methods are recommended. The brush cover method stabilizes very steep and erodible slopes, while the benched brush layer method is useful where slopes are not very steep and erosion is not severe. Gradient is a limitation for slope stabilization by vegetation.

AGRICULTURE AND FORESTRY

631.334
Seeding machinery.

56. Design, construction, and testing of a multiple seeder-fertilizer attachment to the native plow. Maximo E. Quiming and Panfilo C. Ringor. *CLSU Scientific Journal,* Jan.-June 1971, v.7, no.1, p.85-101. tables., illus. 9 refs.

The experimental device consists of a continuous seed and granular fertilizer-hopper divided into compartments. Field tests using corn, soybeans, sorghum and rice showed that the effi-

ciency of the seeder varied from 64.52 to 78.72% for furrow distances of 30-80 cm in a 30 x 40 m field. Increasing the distance between furrows resulted in a decrease in the seeding rate. Also, the time lost in turning on headlands was minimized; the average turning time on headlands was approximately 20 sec when the device was attached to a carabao-drawn plow. As a whole, the seeder functioned satisfactorily, although various improvements are suggested.

631.52:575
Plant breeding.

57. A program designed to maximize genetic variability in the breeding of self-fertilizing crops. L. T. Empig (College of Agriculture, University of the Philippines, College, Laguna). *Philippine Agriculturist,* Dec. 1970-Jan. 1971, v.54, nos.7-8, p.319-324. graph. 8 refs.

A breeding procedure for self-fertilizing crops is presented. The features of the scheme are effective recombination prior to testing, accommodation of a recurrent selection procedure and the use of single seed descend as a technique of generation advance. The implications of these features on plant improvement are discussed.

632.4:674.03
Wood destroying fungi.

58. Philippine fungi associated with decays of wood products. Mario A. Eusebio (FORPRIDECOM, College, Laguna). *Philippine Journal of Science,* June 1969 (1971), v.98, no.2, p.169-197. 29 refs.

Description of the 22 species of wood-decay fungi, 21 of which belong to Polyporaceae and one to Thelephoraceae, is given. The substrates from which the collections were made were generally classified as hardwood or softwood. Identification of the sporophores was made by comparison of macroscopic and microscopic characters.

632.51:632.9 632.954
Weeds - Chemical control.

59. Prospects of controlling malasili - the scourge of pasturelands. Nicomedes F. Paa and Cesario G. Ursua. *Philippine Forests,* March 1971, v.5, no.1, p.27-29. 6 refs.

Experiments showed that malasili (*Eupatorium odoratum* Linn.) can be effectively controlled through the application of Tordon 10-K pellets at 50 g/10 sq.m. after it has been cut close to the ground. Highly significant differences were noted among the 10 dosages studied. It was observed that Tordon has no dangerous effect on the animals.

633.11:631.82 633.11:631.55
Wheat - Yield. Fertilizers - Experiment fields.

60. The effect of varying levels and combinations of N-P-K on the growth and yield of Taichung 31 variety of wheat. Jose M. Manglicmot, Adriano M. Salisi and Lorenzo C. Duqueza (Bureau of Plant Industry, Manila). *Philippine Journal of Plant Industry,* Third-Fourth Quarter 1969(1971), v.34, nos.3-4, p.213-233. graphs, tables. 5 refs.

Results of a 3-yr study showed that the combination of N, P_2O_5 and K_2O at a mixture of 3:2:2 is best for effecting yield increase of Taichung 31 variety of wheat under Maligaya, Muñoz (Nueva Ecija) conditions. N whether applied singly or in combination with P and/or K greatly improved the growth and yield. The important agronomic charac-

ters, such as plant height, spike length, and number of productive tillers and grains/spike, differed significantly under different fertilizer treatment, especially with combinations where N was present.

633.18:631.52
Rice - Varieties.

61. New miracle rice developed. *Animal Husbandry and Agricultural Journal,* April 1971, v.6, no.4, p.9.

A new rice strain, IR 1561, is being perfected at the International Rice Research Institute, Los Baños (Laguna). It is non-seasonal, non-photoperiod sensitive and is suitable for upland farming. The grain resembles the traditional high quality long-grain Patna rice and has the texture of IR 22. Under experimental conditions, IR 1561 yielded 10-11 tons/ha., but under ordinary farming conditions it yielded 5-6 tons.

633.18:631.52:631.55
Rice - Breeding. Rice - Yield.

62. Performance of Japonica-Indica rice crosses (FAO) under upland conditions. Fabian O. Solpico and Amando N. Yambao (Bureau of Plant Industry, Manila). *Philippine Journal of Plant Industry,* Third-Fourth Quarter 1969(1971), v.34, nos.3-4, p.179-186. tables. 7 refs.

Of the 15 F_2 Japonica-Indica crosses, only 13 strains from 3 crosses, Elon-elon x Norin 17, Thailand x Norin 23 and Apostol x Norin 22, were found breeding true to type. 7 strains of the cross Elon-elon x Norin 17, and one of Thailand x Norin 23 outyielded Azucena, Palawan and Mangarez, while one strain of the cross Apostol x Norin 22 outyielded Azucena and Mangarez. The number of days from sowing to heading of selected strains ranged from 115 to 123 days, and the milling recovery ranged from 63.8 to 71.8%.

633.18:631.52:631.55
Rice - Varieties. Rice - Yield.

63. New high-yielding upland rice. Esteban C. Cada, Jesus Nepomuceno and Ronulfo Frediles (Bureau of Plant Industry, Manila). *Philippine Journal of Plant Industry,* Third-Fourth Quarter 1969(1971), v.34, nos.3-4, p.163-169. graphs, plates, table. 5 refs.

M_1-48 and M_9-33B, named BPI-1-48 and BPI-9-33, respectively, are new high-yielding hybrid strains developed at the Maligaya Rice Research and Training Center, Muñoz (Nueva Ecija). The average yields of BPI-1-48 and BPI-9-33 in a 3-yr experiment were 76.72 and 68.56 cavans/ha., respectively, which were higher than that of the Seed Board recommended variety HBDa-2. Both varieties are early maturing, short and resistant to lodging.

633.18:631.52(043)
Rice - Genetic research.

64. Experiments on intergeneric crosses of rice with some genera of the Gramineae family. Sukom Rugsachat. Victoneta Park, Malabon, Rizal, Araneta University Foundation, April 1971. viii, 43p. map, tables, illus. 5 refs. (Thesis. M. S. in Agriculture)

Of the 14 different genera of grass crossed with rice, only Java grass *Polytrias praemorsae* (Nees) Back gave positive results. 60 hybrid seeds were fairly developed, while 47 were poorly developed due to premature drying. However, the 60 cross-pollinated seeds failed to germinate possibly due to genetic and cytoplasmic differences.

633.18:631.531
Rice - Germination.

65. Rice peroxidase: III. Peroxidase activity at various time intervals during germination. W. T. Libunao, M. E. Flavier, A. C. Santos and D. R. Strength (College of Agriculture, University of the Philippines, College, Laguna). *Philippine Agriculturist,* Feb.-March 1971, v.54, nos.9-10, p.422-431. graphs. 6 refs.

The changes in the peroxidase level of the dormant seeds of H-4 and IR5 treated with cyanide gave high enzyme level while the treated dehulled germinated seeds exhibited low enzyme activity. The peroxidase level in the dehulled H-4 seeds was lower than the control; that in the IR5 seeds, higher than the control.

The peroxidase activity from the ungerminated samples treated exactly on the germinated batch was found to increase up to the 24th hr and decreased to a nearly constant level on storage.

633.18:631.531
Rice - Seed.

66. Rice peroxidase: II. The effects of chemical treatment on dormancy and the peroxidase activity in rice seeds. M. E. Flavier, W. T. Libunao, D. R. Strength and A. C. Santos (College of Agriculture, University of the Philippines, College, Laguna). *Philippine Agriculturist,* Feb.-March 1971, v.54, nos.9-10, p.414-421. tables. 17 refs.

Dormant and non-dormant seeds of H-4 and IR5 rice varieties were treated with 5 different chemical reagents. Of the chemical agents used, KCN at a concentration of 10^{-2}M was found most effective in breaking the dormancy of both varieties. A concentration of 10^{-3}M and one M solution proved ineffective in breaking seed dormancy and did not stimulate germination. The chemically treated ungerminated dormant seeds of both varieties showed a lower peroxidase activity than the untreated seeds, while the germinated seeds had higher peroxidase level.

633.18:631.543
Rice - Cultivation. Rice - Yield.

67. Direct seeding of tropical rice varieties. B. B. Mabbayad and R. F. Acasio (College of Agriculture, University of the Philippines, College, Laguna). *Agriculture at Los Baños,* Jan.-March 1971, v.10, no.3, p.11-12. tables.

Short, non-leafy and lodging-resistant rice varieties gave better yield with direct seeding. In the wet season, the optimum seed rate for varieties BPI-76-1 and C4-63 was 66 kg/ha., while that for IR8(68) was 88 kg/ha. In the dry season, C4-63 required a higher seed rate. The yields of directly seeded IR8(68) and C4-63 were as high as those transplanted at all population levels.

633.18:631.55
Rice - Planting. Rice - Yield.

68. Comparative yields between transplanted and drilled methods of planting rice. J. Bulanadi, T. T. Gonzales and V. G. Rodriguez (Bureau of Plant Industry, Manila). *Philippine Journal of Plant Industry,* First-Second Quarter 1970(1971), v.35, nos. 1-2, p.49-53. tables.

Transplanted and drilled methods of planting rice were tried on Tjeremas, BP1-76, SK.36 Str. 482, Peta and Intan rice varieties at Lamao Experiment Station (Bataan). Results of the study showed that the method of planting had no significant effect on yield.

633.18:631.55
Rice - Yield.

69. The effect of simulated rat tiller cutting on the yield of rice. Rafael D. Guerrero, III (Central Luzon State University, Nueva Ecija). *Philippine Agriculturist*, Feb.-March 1971, v.54, nos.9-10, p.439-447. tables. 7 refs.

Mechanical damage was inflicted on a non-seasonal rice variety, C4-63G, with 2 tiller cutting intensities (20 and 60%) at 6 stages of growth within the vegetative and reproductive phases of the rice plant. No significant differences were observed in yields between the 20% mechanically-damaged plants and the control from 4 to 10 wks and 12 wks after transplanting. However, the yield reductions of the 60% mechanically-damaged hills in comparison with the controls were significant at all stages of the vegetative and reproductive phases. The results indicated that a high intensity of mechanical damage affects the rice yield more adversely than a low intensity. The regeneration of the cut tillers was also observed.

633.18:631.55:631.41 631.42
Rice - Yield.
Soil, Salts in.

70. Observations on some saline lowland rice fields of Camarines Sur. B. T. Mercado, C. A. Malabayabas, P. B. Escuro, R. Obias, C. Escober and F. Villegas. *Philippine Agriculturist*, Dec. 1970-Jan. 1971, v.54, nos.7-8, p.338-344. tables, illus. 3 refs.

The survey revealed that plants grown in saline fields were stunted with very weak culms and leaves; on the average, the plants produced 6 tillers and the expected yield was about 10-15 cavans/ha. In contrast, IR-20 rice variety grown in non-saline areas grew vigorously and had numerous productive tillers; the expected yield was 100-110 cavans/ha. Also, germination of C4-137 in 4 saline soils was delayed compared to that grown in non-saline soil. The electrical conductivity of the saline fields surveyed, ranged from 2.72 to 6.35 mmhos/cm and that of the non-saline areas was 0.91 - 1.63 mmhos/cm. Chemical analysis of the soil and irrigation water used revealed that the predominant ions were Na^{+} and Cl^{-}; Ca^{+2} and Mg^{+2} ions were relatively higher in the saline soils.

633.18:631.84 633.18:631.55
Rice - Yield. Fertilizers - Experiment, Field.

71. Fertilizer studies on rice at the Maligaya Rice Research and Training Center. T. S. Eugenio, A. J. Bueno and G. R. Coloma (Maligaya Rice Research and Training Center, Muñoz, Nueva Ecija). *Philippine Journal of Plant Industry*, First-Second Quarter 1970(1971), v.35, nos.1-2, p.87-96. tables. 9 refs.

Based on the trend of the general mean yield of the varieties tested, 90 kg N/ha. should be applied during both dry and wet seasons under Muñoz and similar conditions. The high yielding varieties are IR8 and IR5, with IR8 requiring 120-150 kg N/ha. during the dry season. In general, significant interaction was noted among the varieties and the level of N applied during the wet season. Peta and C-18 were the lowest yielders.

633.18:632.6:632.94
599.323:632.94
Rice - Diseases and pests.
Rats - Extermination.

72. Movement of the ricefield rat, Rattus rattus mindanensis, in response to flooding and flowing as shown by fluorescent bone labeling. G. K. Lavoie, G. C. Atwell, F. N. Swink, J. P. Sumangil and J. Libay. *Philippine Agriculturist,* Dec. 1970-Jan. 1971, v.54, nos.7-8, p.325-330. tables. illus. 4 refs.

The study was conducted in a 15-ha. ricefield planted to C-4 in Nueva Ecija which was baited with demethychlortetracycline (DMCT). After flooding and plowing the baited area, rats were snap-trapped at distances up to 400 m away. 32% of the rats trapped were positive for DMCT and about 3/4 of these were trapped within 100 m of the baited area. These results indicate that land preparation displaces rats, but that most do not move very far. Laboratory studies on rats showed that DMCT is well accepted and is an efficient bone-labeling compound in controlling *R. r. mindanensis.*

633.18:632.8:632.954
Rice seedlings. Trifluralin.

73. Morphological and physiological responses of crops and weeds to trifluralin. III. Anatomic effects of trifluralin on the root of rice (Oryza sativa L.). Beatriz L. Mercado and Rolinda L. Talatala (College of Agriculture, University of the Philippines, College, Laguna). *Philippine Agriculturist,* Dec. 1970-Jan. 1971, v.54, nos.7-8, p.375-383. tables, illus. 8 refs.

Seedlings of IR-8 treated with 50 ppm trifluralin showed swelling of the root tip 6 hrs after treatment. Histochemical observations revealed lateral root primordium initials at the tips of seedlings treated for 3 hrs. The number of the root primordium initials increased as the treatment was prolonged. The initials were conspicuously multinucleated after 21 hrs.

633.18.001.5 633.15.001.5
Rice research. Corn research.

74. Rice and corn FY1970-1971 13th annual report of the UPCA rice and corn research program. College, Laguna, University of the Philippines, March 1971. 244p. graphs, tables.

The report summarizes the results of continuing studies on rice and corn being investigated under varying environmental and cropping conditions. The studies include varietal improvement, culture and management, crop protection, chemistry and utilization, and new uses.

633.52.151:632.2:632.94
Ramie. Nematodes - Parasitic in plants.

75. The extent of nematode infestation on ramie in Mindanao and its control by soil fumigation. C. P. Madamba, J. J. Walawala, R. G. Davide and R. K. Palis (College of Agriculture, University of the Philippines, College, Laguna). *Philippine Agriculturist,* Feb.-March 1971, v.54, nos.9-10, p.448-473. tables, illus. 4 refs.

Results of a survey indicated that the root-knot nematode, *Meloidogyne incognita* was the most destructive among the 12 plant parasitic genera associated with ramie grown in Mindanao. 58% of 24 lots surveyed showed moderate to heavy infestation. The severity of infection was correlated with low stalk height and density of the crop. Chemical control

was most effective in minimizing nematode infestation, especially the granular nematocides which promoted increased yield. The dry-fiber yield obtained from treated beds was 1.81 piculs/ha. more than the untreated plots.

Rootstocks for transplanting may be freed from root-knot nematode infestation by immersing in either 0.7% a.i. Fumazone 70E or 2.5% a.i. Metasystox 25EC for 10 min.

633.526.1:632.358:632.9
Manila hemp mosaic virus.

76. Further studies on three methods of weed control and insecticide spraying as control measures against the abaca mosaic diseases. P. R. Celebrar, C. S. Gonzales, A. L. Eloja and M. R. Gavarra (Bureau of Plant Industry, Manila). *Philippine Journal of Plant Industry,* First-Second Quarter 1970(1971), v.35, nos. 1-2, p.79-86. tables. 5 refs.

Experiments conducted at the Davao Experiment Station in Bago (Davao City) showed that spraying of Diazinon E20, clean culture and covercropping methods of weed control did not significantly reduce the incidence of abaca mosaic disease and the population of alate aphids.

633.61:632.3/.4
Sugar cane - Diseases and pests.

77. Pests, diseases and their control. J. R. Rivera, L. G. Reyes, I. B. Cano and A. Chu, Jr. (Philippine Sugar Institute, Quezon City). *Sugarland,* Jan.-Feb. 1971, v.8, no.1, p.10-12, 14, 16, 67-69, 81.

Of the 21 major cane diseases of the world, 17 were found in the Philippines as of 1968. 15 of these diseases are briefly discussed as to economic importance, causal organism, symptomatology, transmission and control measures.

634/635:631.563/.565
Fruit. Vegetables.

78. Grading, transport and storage of fruits and vegetables. Araceli L. Dolendo (Greater Manila Terminal Food Market, Makati, Rizal). *Animal Husbandry and Agricultural Journal,* Jan. 1971, v.6, no.1, p.30, 33. table.

Proper grading, handling and transport, and effective storage in maintaining the quality of produce being stored are briefly discussed. Temperature and humidity are the critical factors in storage.

634.0:581.19
Wood - Chemistry.

79. The proximate chemical composition of some Philippine non-commercial & weed woods. J. A. Semana, E. U. Escolano, P. C. Francia and C. S. Bautista (FORPRIDECOM, College, Laguna). *Philippine Lumberman,* Feb. 1971, v.17, no.2, p.20-22. tables. 13 refs.

Proximate chemical analysis of 20 Philippine non-commercial and weed woods showed significant differences in all components except hot-water solubility. Of the species studied, apanit (*Mastixia philippinensis* Wang.) had the highest holocellulose and lowest lignin contents, but low pentosan content, making it suitable for the manufacture of dissolving pulp; hinlaumong-laparan (*Mallotus confusus* Merr.) and malakalumpang (*Sterculia ceramica* R. Br.) also had high holocellulose and pentosan contents, but low lignin content, which make them suitable for paper-grade pulps. Found unsuitable for pulping and paper-making were katmon-bayani (*Dillenia megalantha* Merr.), tuai (*Bischofia javanica* Blume), hamindang (*Macaranga*

bicolor Muell.-Arg.), daha (*M. caudatifolia* Elm.) and tangisang-bayauak (*Ficus variegata* Blume).

634.0:581.4 582.47:581.4
Wood - Anatomy.

80. Identification of the woods of Philippine conifers. B. C. de Vela (FORPRIDECOM, College, Laguna). College, Laguna, Forest Products Research & Industries Development Commission, Jan. 1971. 4p. illus. 6 refs. (Technical note no. 101)

The anatomical description and identification of 11 wood species are briefly discussed. Most of the species described are those belonging to Pinaceae and Podocarpaceae. The identification of the coniferous woods is based primarily on features visible under the microscope.

634.0:632.954
Trees - Diseases and Pests - Prevention.
Weed - Control.

81. Research on chemical control of forest weeds conducted in U.P. College of Forestry. Neptale Q. Zabala. *Animal Husbandry and Agricultural Journal*, April 1971, v.6, no.4, p.30-36. tables, illus. 4 refs.

Studies were conducted in Mt. Makiling, College (Laguna) and Atok (Benguet) to determine the effectiveness of Tordon Brushkiller pellets in controlling various broadleaf weed species. The herbicide was found effective at a dosage not less than 50 lb/acre. However, a dosage of 100-300 lb/acre proved more effective. In general, bigger trees showed resistance to the chemical except for a few species. Some of the species which were found highly susceptible are: balobo (*Diplodiscus paniculatus*), dapdap (*Erythrina orientalis*) and balukang (*Chisocheten cumingianus*).

634.0.1
Forest and forestry - Statistics.

82. Philippine commercial trees - their number, distribution & abundance. Lucio L. Quimbo (College of Forestry, University of the Philippines, College, Laguna). *Philippine Lumberman*, Feb. 1971, v.17, no.2, p.10, 12, 14, 16, 18. table.

The distribution and abundance of 70 of the 316 large trees mentioned in Salvosa's Lexicon are tabulated. Of the 70 species, 4 are available in large quantities, namely almon, red lauan, mayapis and tangile; 18 species are fairly abundant and 48 are not available in commercial quantities. The qualities of the wood of most of these large trees are not desirable, such as those belonging to *Ficus* and *Elaeocarpus*. Also, the uses and physical properties of the other species have not been thoroughly studied and, therefore, are not yet being utilized.

634.0.2
Forest and forestry.

83. Fast-growing pulpwood trees in plantations. F. O. Chinte. *Philippine Forests*, March 1971, v.5, no.1, p.21-26, 29. tables.

Initial results of the introduction of moluccan-sau [*Albizzia falcata* (L.) Back.], yemane (*Gmelina arborea* Roxb.), kaatoan bangkal (*Anthocephalus chinensis* Rich. ex. Walp.) and umbrella tree (*Musanga cecropioides*), in Bislig (Surigao del Sur) are presented. The habitat, propagation, survival and mortality in the nursery and plantation, rate of growth and yield, and uses of each species are discussed.

634.0.8
Wood. Packaging materials.

84. Wood as a packaging material. A. G. Mangahas (FORPRIDECOM, College, Laguna). College, Laguna, Forests Products Research & Industries Development Commission, Feb.1971. 3p. 14 refs. (Technical note no. 102)

Some important forest products, such as paperboard, multi-wall paper bags, wooden boxes and crates, wooden pallets and cushioning materials used as packaging materials, are briefly discussed.

634.3:632.3:632.951
Citrus fruits - Diseases and pests. Insecticides.

85. Studies on the field control of Diaphorina citri, Kuway. Progress Report I. Ciriaco S. Celino and Urbano V. Molino (Lipa City Experiment Station, Bureau of Plant Industry, Lipa City). *Animal Husbandry and Agricultural Journal*, March 1971, v.6, no.3, p.23-24. table. 4 refs.

Rogor L-20, Thiodan 35%E and Anthio-40 were tested in the control of *Diaphorina citri* in citrus plantation. Results showed that Ladu plants sprayed with the chemicals had vigorous growth compared to untreated plants. During the dry season, psylla population was low, but high during the rainy season. The chemicals were also effective against aphids, leafminers, mealybugs, orange dogs, white flies and some species of scales.

634.3:632.3(914)
Citrus fruits - Diseases and pests.

86. Citrus greening disease in the Philippines. A. L. Martinez and J. M. Wallace. *Philippine Journal of Plant Industry*, First-Second Quarter 1970 (1971), v.35, nos.1-2, p.27-39. plates. 14 refs.

The disease is characterized by yellowing and mottling of the leaves, defoliation and die-back of twigs and branches, and production of multiple buds and abnormal fruits. The symptoms are similar to those of citrus die-back in India, citrus chlorosis in Java, greening disease in South Africa, likubin in Taiwan and stubborn disease. Studies showed that the diseased is caused by a virus, transmissible by tissue grafting and by psyllid (*Diaphorina citri*), but not through seeds and by mechanical transmission. Variations in symptom development on different experimentally infected seedlings may be attributed to varietal differences. The greening virus was found distinct from other viruses, such as tristeza, seedling yellows, exocortis, psorosis and xyloporosis.

634.3:632.3(914)
Citrus fruits - Diseases and pests.

87. Exocortis virus, the cause of bark disorder in Sziwuikom mandarin in the Philippines. Aureo L. Martinez (Lipa Experiment Station, Bureau of Plant Industry, Lipa City). *Philippine Journal of Plant Industry*, First-Second Quarter 1970(1971), v.35, nos.1-2, p.97-101, plates. 2 refs.

The bark disorder in Sziwuikom mandarin is characterized by scaling and cracking or splitting on the trunk, limbs, branches and twigs. It was found that the sensitivity of Sziwuikom mandarin to exocortis infection was unaffected by the presence of other viruses. It is, therefore, suggested that in the absence of known exocortis-sensitive citrus varieties and species, an infested Sziwuikom mandarin can serve as an

indicator for exocortis virus.

634.3:632.7:632.951
Citrus fruits - Diseases and pests. Insects, Injurious and beneficial - Control.

88. Study on the control of citrus fruitfly [Dacus dorsali, var. occipitalis (Bezzi.)] by annihilating the male population with the use of methyl eugenol as attractant. Ciriaco S. Celino and Dante R. Panaligan (Bureau of Plant Industry Citrus Station, Lipa City). *Animal Husbandry and Agricultural Journal*, July 1970, v.5, no.7, p.32-33.

Field experiments on Ladu variety showed that poisoned-methyl eugenol together with protein insecticide bait or chemicals, such as Dylin, Meptox and Lebaycid, effectively controlled citrus fruitfly, *Dacus dorsalis* var. *occipitalis* (Bezzi). Results showed that the lure can attract flies within 1/2 mile radius or more depending upon the prevailing wind. It took a longer period to eradicate fruitfly when they have bred and pupated in the field.

634.3:632.9(914)
Citrus fruits - Diseases and pests- Control.

89. Suppression of symptoms of citrus greening disease in the Philippines by treatment with tetracycline antibiotics. A. L. Martinez, D. M. Nora and A. L. Armedilla (Bureau of Plant Industry, Lipa City). *Animal Husbandry and Agricultural Journal*, Feb. 1971, v.6, no.2, p.14, 16. 18 refs.

Results of experiments with greening-infected seedlings and buds of different citrus varieties showed that the symptoms of the disease were suppressed by some tetracycline antibiotics, such as Achromycin and Tetrachel. This indicates that the etiologic agent is a *Mycoplasma*-like organism. Achromycin when applied as a foliar spray stimulated chlorophyll development.

634.45:581.145.1
Rambutan. Plants, Flowering of.

90. Growth and flowering habits, floral biology and yield of rambutan (Nephelium lappaceum Linn.). R. V. Valmayor, D. B. Mendoza, Jr., H. B. Aycardo and C. O. Palencia (College of Agriculture, University of the Philippines, College, Laguna). *Philippine Agriculturist*, Dec. 1970-Jan. 1971, v.54, nos.7-8, p.359-374. graphs, tables, illus. 4 refs.

Observations were made on 200 bearing and 200 non-bearing shoots from 4 "Seenjonja" rambutan trees. Results showed that the heaviest vegetative flushes of growth occurred in Oct.-Dec. The non-flowering shoots produced a heavy flush of terminal growth after fruit harvest in Sept., while the bearing shoots produced a heavy flush of vegetative growth after fruit harvest. Growth in non-bearing shoots originated from simple terminal buds, and growth in bearing shoots, from axillary buds. 3 types of flowers were observed, namely staminate, hermaphrodite functioning as female (h.f.f.) and hermaphrodite functioning as male (h.f.m.). "Seematjan" cultivar produced only h.f.f. suggesting the need for male trees in planting orchards while "Maharlika" produced both hermaphrodite flower types, but the h.f.m. were few so that male trees may help increase production. "Seenjonja" gave an average production of 41 kg significantly outyielding "Seematjan" and "Maharlika".

634.47:631.58
Persimmons.

91. Persimmon culture in Baguio. Exequiel B. Ramos and Hipolito Monzada (Bureau of Plant Industry, Manila). *Philippine Journal of Plant Industry,* First-Second Quarter 1970(1971), v.35, nos.1-2, p.55-65. plates. 12 refs.

The cultural requirements for the successful growing of persimmon, particularly under conditions similar to Baguio (Mt. Province), are described in detail. The known rootstocks that have been used for propagation are *Diospyros kaki, D. virginiana* and *D. lotus* however, only the *kaki* species is available at the Baguio Experiment Station where the fruit has been successfully grown. A 6-yr-old grafted tree and a 20-yr-old tree yielded from 150 to 300 fruits and from 600 to 1000 fruits, respectively. So far, no serious disease has been observed attacking the plant except a minor disease affecting the bark, but which is controlled with a Bordeaux mixture.

634.58:631.52:631.55
Peanuts - Varieties.
Peanuts - Yield.

92. Seven-year peanut variety test. Felix D. Lazo, Andres Queddeng and Consuelo M. Caliwag (Bureau of Plant Industry, Manila). *Philippine Journal of Plant Industry,* Third-Fourth Quarter 1969(1971), v.34, nos.3-4, p.193-211. tables, diagr. 8 refs.

Of the 38 bunchy and runner type varieties tested, Virginia Runner G-41, F334-27, Florispan P.I. 2832, F334-32, B177-19 and Spanish 163287 gave the highest yield ranging from 36 to 40 cavans shelled peanuts/ha. The runner type varieties matured from the time of planting at an average of 135 days and 120 days for the bunch type.

634.61:632.2
Palms - Diseases and pests.
Nematodes - Parasitic in plants.

93. Nematodes associated with roots of coconuts and other palms. Antonio C. Pizarro (Bureau of Plant Industry, Manila). *Philippine Journal of Plant Industry,* Third-Fourth Quarter 1969 (1971), v.34, nos.3-4, p.155-158. table. 5 refs.

A survey of healthy and cadang-cadang-infected palm trees revealed the presence of *Meloidogyne incognita* (Kofoid and White) Chitwood in 9 different species of palm except coconut. *Helicotylenchus* sp. was found feeding on coconut, African oil palm, Royal palm and MacArthur palm; *Criconemoides* sp. was present in coconut and African oil palm.

634.616:581.14
Macapuno - Embryology.

94. Test tube macapuno plants. *Animal Husbandry and Agricultural Journal,* Jan. 1971, v.6, no.1, p.19.

The embryo culture of macapuno is briefly described. Experiments showed that the biggest of the successfully cultured macapuno plants has grown from 5 to 100 in. after 4 mo., indicating that the growth of macapuno plants can be sustained from the test tube to soil conditions.

634.616:631.58
Coconut - Cultivation.

95. Feasibility of replanting coconuts within or adjacent to cadang-cadang infested areas. Domingo B. Protacio (Bureau of Plant Industry, Manila). *Philippine Journal of Plant Industry,* Third-Fourth Quarter 1969(1971), v.34, nos.3-4, p.171-175. illus. 8 refs.

Experimental replanting of cadang-

cadang-devastated coconut farm was conducted using the Philippine coco niño variety. Of 358 trees grown, only one became diseased within 11 yrs. This suggests that the soil in a diseased area does not contain an infectious agent or a toxic element capable of causing cadang-cadang and that the soil is not significantly deficient of a particular nutrient needed for normal growth of trees.

634.616:632.1
Coconut. Roots - Respiration.

96. Aftershock treatment of coconuts. *Animal Husbandry and Agricultural Journal*, July 1970, v.5, no.7, p.33.

The root system of coconuts have been observed to be disturbed by earthquakes, slowing down their growth. To stimulate the disturbed root system to grow, it is advised to cultivate the interrows of coconut by plowing 6-8 in. deep. Fertilizer should be applied during the rainy season, the amount of fertilizer depending on the stage of growth of the coconut tree.

634.616:632.3
Coconut - Diseases and pests.
Cadang-cadang.

97. A review of and the quantitative approach to the symptomatology of cadang-cadang disease of coconut. D. B. Protacio and W. H. Sill, Jr. *Philippine Journal of Plant Industry*, First-Second Quarter 1970(1971), v.35, nos.1-2, p.1-17. graphs, plates, table. 15 refs.

A survey in 12 coconut-producing provinces in the Philippines was conducted to determine cadang-cadang symptoms at the earliest possible stage. It was noted that the shape and color of coconut palms, condition of the crown, winged stipule on the petiole and root-rotting of trees are helpful guides in the detection of cadang-cadang infection. Detailed description of the symptoms are given.

634.616:632.3
Coconut - Diseases and pests.
Cadang-cadang.

98. Studies on the root system of healthy and cadang-cadang affected coconut trees. Alfredo B. Magnaye (Bureau of Plant Industry, Manila). *Philippine Journal of Plant Industry*, Third-Fourth Quarter 1969(1971), v.34, nos.3-4, p.143-153. plates, tables, diagr. 11 refs.

Results showed that healthy trees have more and healthier primary roots than the cadang-cadang-affected trees. This is explained as due to more photosynthetic activities occurring in healthy trees than in diseased trees. In both healthy and diseased trees, heaviest concentration of primary roots was noted at 1-3 ft distance from the base and at 2-4 ft depth, and there were more main vertical roots than horizontal roots. Also, the horizontal primary and secondary roots were smoother and more straight than vertical roots which showed distortion and roughened surfaces. The greatest numbers of secondaries were roots growing laterally followed by secondaries growing upwards and downwards. There were no appreciable differences in weights between the primary roots of healthy and diseased trees.

634.772:631.53
Banana propagation.

99. Influence of planting material on growth and crop yield of lakatan banana. R. V. Valmayor, I. M. Clemente and J. C. Hapitan, Jr. (College of Agriculture, University of the Philippines, College, Laguna). *Agriculture at Los Baños,*

Jan.-March 1971, v.10, no.3, p.8-10. graphs, tables, illus. 2 refs.

Of the 6 planting materials tested, maiden suckers cut back to about 10 cm above the rhizome gave the best results. Cutting off the pseudostem did not adversely affect the growth nor crop yield of 'Lakatan' banana, but rendered the planting material easy to transport, disinfect and plant.

634.772:632.5:632.954
Bananas - Diseases and pests- Therapeutics.
Weeds - Chemical control.

100. Weed control with herbicide in banana plantations. R. C. Barba and S. E. Cuevas (College of Agriculture, University of the Philippines, College, Laguna). *Agriculture at Los Baños*, Jan.-March 1971, v.10, no.3, p.5, 15. table.

Experiments with pre-emergence herbicides like ametryne and diuron, and post-emergence herbicides like aromatic oil, dalapon and paraquat showed no evidence of yield reduction or delayed maturity. Direct application of the herbicides to the weed or soil and their rotation are recommended. However, aromatic oil should not be used on bananas with near maturing fruits as volatile fumes may bleach the fruits.

635.21:632.4:632.952
Potato late blight. Fungicides.

101. Test of some fungicidal sprays in the control of late blight of potato. Ruth B. Calo (Bureau of Plant Industry, Manila). *Philippine Journal of Plant Industry*, Third-Fourth Quarter 1969 (1971), v.34, nos.3-4, p.109-121. tables. 7 refs.

Experiments showed that under Baguio City conditions, potato plants treated with Dithane M-45, Kocide 101, Piomycine, Daconil 2787, Du Pont Fungicide 1991, Vitigram Blue, Miller 658, Thylate, Shell Maneb, Antracol, Copper Lonacol, Flit 406 and Polyram combi were partially protected from late blight infection caused by *Phytophthora infestans* Mont. (de Bary). Also, the treatments promoted significant increase in yield. However, burning effects were observed with the use of Cosan, Duter and Brestan 60.

635.22:631.52
Sweet potatoes - Varieties.

102. Screening of sweet potato varieties. Julian O. Solpico, Roberto R. Virtucio and Arturo N. Gabucan (Bureau of Plant Industry, Manila). *Philippine Journal of Plant Industry*, First-Second Quarter 1970(1971), v.35, nos.1-2, p.71-78. tables. 7 refs.

A total of 24 varieties of sweet potatoes were evaluated for their yield, starch and carotene contents and other agronomic characters. 10 varieties were found the highest yielders for the rainy season planting with yields ranging from 6.2 to 33.8 tons/ha. and 10 other varieties for the dry season planting with yields ranging from 3.2 to 14 tons/ha. The other varieties were either bushy or creeping. 15 of the varieties matured within 120 days. Of the varieties studied, Sinawa, Korodikod, Ilagan Rose and Trescolores had the best eating quality. Kainday had the highest starch content (13.46%) and Georgia Yellow Yam, the highest carotene content (11.45 mg). In general, varieties with orange or deep yellow or yellowish flesh contained carotene.

635.34:632.951
Cabbages - Diseases and pests.
Insecticides.

103. Field evaluation of the granular soil systemic insecticide Cyolane and foliar sprays of Ambithion, Accothion and Phosdrin against Plutella xylostella Linn. and other insect pests of cabbage. F. F. Sanchez, N. M. Esguerra, F. B. Calora and S. F. Barroga (Bureau of Plant Industry, Manila). *Philippine Journal of Plant Industry,* Third-Fourth Quarter 1969(1971), v.34, nos.3-4, p.131-141. tables. 4 refs.

Experiments on one-mo.-old Marion Market cabbage showed that Cyolane 10% granules applied to the soil at 2.5 kg/ha. at transplanting and followed by weekly foliar sprays of Phosdrin starting on the 7th wk up to harvest time gave excellent protection against *P. xylostella.* Foliar spray of Phosdrin alone was also found effective.

635.52:632.4:632.952
635.52:632.4:535.21
Lettuce seedlings - Diseases and pests - Control.
Sclerotium rolfsii

104. Control of Sclerotium rolfsii Sacc. associated with damping-off disease of seedlings by fungicidal treatment and by irradiation. Phithoon Khawthephavan and Martin S. Celino (Araneta University Foundation, Victoneta Park, Malabon, Rizal). *Araneta Journal of Agriculture,* Jan.-March 1971, v.18, no.1, p.32-62. tables, illus. 29 refs.

Orthocide and Agallol applied to experimentally infested lettuce seedlings produced similar and more repressive effect than Antracol against *Sclerotium rolfsii* Sacc. *In vitro* tests showed a complete inhibition of sclerotial growth by Agallol, retarded or partial inhibition by Antracol and from retarded or partial inhibition to complete inhibition by Orthocide. However, radiation treatments of mature sclerotial bodies of *S. rolfsii* Sacc. in soil and agar culture media, at doses as high as 3328 kr for 64 hrs and 120 kr for 24 hrs, respectively, failed to destroy the fungal growth.

635.65:632.7:632.951
Beans - Diseases and pests.
Insecticides.

105. Preliminary experiment in control of Heliothis armigera Hubner attacking bean pods. Elizabeth Agpad-Verzola and Rosendo V. Cortado (Bureau of Plant Industry, Manila). *Philippine Journal of Plant Industry,* Third-Fourth Quarter 1969(1971), v.34, nos.3-4, p.187-191. tables. 2 refs.

Weekly sprayings with Sevin, Folidol M-50, Endrin 19.5 E.C., Malathion E-57, EPN 300, Aldrin 40W and Diazinon 20E effectively controlled *Heliothis armigera* Hubner attacking bean pods. All of these insecticides reduced infestation by more than 90%, resulting in considerable decrease of damaged bean pods. Statistically, they were equally effective against the pest. However, there were indications that Sevin and Folidol M-50 were more effective in reducing infestation.

Economically, it is highly advisable to use the insecticides, particularly Sevin, since they tremendously increased production and income compared with the control. - Authors' Abstract

635.65:632.7:632.951
Peas - Diseases and pests.
Insecticides.

106. Evaluation of pesticides for the control of pea leaf miner (Phytomyza atricornis Meigen) and other insect pests attacking sweet pea (Pisum sativum L.). Salud F. Barroga and Aurora B. Barreras (Bureau of Plant Industry, Manila). *Philippine Journal of Plant Industry*, Third-Fourth Quarter 1969 (1971), v.34, nos.3-4, p.123-130. tables. 5 refs.

Of the insecticides tested, Roxion Azodrin 168, Meptox 50, Dimecron and Carbamult were the most effective in the control of *Phytomyza atricornis* Meigen, significantly reducing damage on the leaves, and the number of larvae and pupae. Likewise, Nexion and Dibrom 8E proved effective against larvae of corn earworm, *Helicoverpa armigera* Hubn. No significant differences in yield were observed between the treated and control plots due partly to the unequal number of hills/treatment as a result of the damage done by soil-cutworms, *Agrotis ypsilon* Rott.

635.65:632.9
Beans - Diseases and pests.

107. Control of Lepidopterous pests attacking bush bean (Phaseolus vulgaris L.) blossoms and pods. Salud F. Barroga (Bureau of Plant Industry, Manila). *Philippine Journal of Plant Industry*, Third-Fourth Quarter 1969(1971), v.34, nos.3-4, p.159-162. tables. 2 refs.

The following species were noted infesting bush bean, namely: cabbage semilooper, *Chrysodexeis calcites* Esper., corn earworm, *Helicoverpa armigera* Hubn., wood louse, *Catechrysop cnejus* Fabr., and lima bean pod borer, *Maruca testulalis* Geyer. Dipterex, Phosdrin, Thiodan, Sevin 85, Dibrom 8E, Endrin and Lannate significantly reduced the lepidopterous pests 6-7 days after spraying. All treatments promoted practically equal yields, except Dibrom 8E which effected significantly low yield.

635.656:631.52:631.55
Beans, Mung - Varieties.

108. BPI develops four mungo varieties. *Animal Husbandry and Agricultural Journal*, July 1970, v.5, no.7, p.15.

The varieties MG-50-10A, MD 15-2, BPI Glabrous Hybrid No.3 and MG-61-2 developed by the Bureau of Plant Industry, Los Baños (Laguna) were found to yield 1.7-2.5 tons/ha. shelled beans. MG-50-10A and Glabrous Hybrid No.3 are recommended for planting for both seasons and MD 15-2 for the dry season planting, in rotation to paddy rice. MG-50-10A was found to have high carbohydrate content and is suitable for noodle or sotanghon manufacture. BPI Glabrous Hybrid No.3 have big beans, and are good for growing bean sprout and noodle making.

635.656:631.531
Beans, Mung. Trifluralin.

109. Morphological and physiological responses of crops and weeds to Trifluralin IV. Amino acids-Trifluralin interaction in mung bean (Phaseolus aureus L.). Beatriz L. Mercado and Aurora M. Baltazar (College of Agriculture, University of the Philippines, College, Laguna). *Philippine Agriculturist*, Dec. 1970-Jan. 1971, v.54, nos.7-8, p.384-389. tables, illus. 5 refs.

The amino acid content of 24-hr-old mung bean seedlings treated with 50 ppm Trifluralin was qualitatively analyzed by paper chromatography. Results showed the presence of all other

amino acids except arginine. Glutamic acid and asparagine showed increased concentrations as indicated by their more intense color reactions with ninhydrin. Trifluralin increased the rate of metabolism of arginine into glutamic acid, and glutamic acid, in turn, gave rise to asparagine. Arginine did not alter the growth response of mung seedlings to Trifluralin. However, other amino acids showed stimulatory effects.

635.656:631.563
Sweet peas.

110. Irradiation of sweet pea pods. A. V. Barlahan, L. C. Corpuz and J. de Jesus (Bureau of Plant Industry, Manila). *Philippine Journal of Plant Industry,* First-Second Quarter 1970 (1971), v.35, nos.1-2, p.67-70. table.

The effect of irradiation on fresh green pea pods at dose levels of 10,000-100,000 rads and refrigerated at 50°F was investigated. Results showed that the gamma rays stimulated rapid growth and maturity of the seeds and ponds, and the disappearance of the green color, but did not inhibit growth of molds. However, irradiation to prolong the shelf-life and to decrease storage losses is not advised.

635.8:581.14
Mushroom culture.
Auricularia polytricha.

111. Preliminary studies on the artificial cultivation of Auricularia polytricha for food. C. V. Arenas. *Wood Preservation Report* (Forest Products Research & Industries Development Commission, College, Laguna), Jan.-Feb. 1971, v.6, no.1, p.5-8. 8 refs.

The probable cultivation of *Auricularia polytricha* using billets and planer shavings is presented. Substrate I, a moist mixture of ilang-ilang planer shavings and rice bran, supported a vigorous and thick mycelial growth of *A. polytricha.* No growth was observed in Substrate II which composed of planer shavings and rice bran mixtures and a tablespoonful of brown sugar. In the case of billets used as growing media, the inoculum failed to grow on the planer shavings substrate. The failure could be due to the fluctuation of temperatures, RH and moisture content. However, the fungal mycelium could possibly be grown in a temperature-humidity controlled chamber or a cave or underground tunnel as in Korea, Taiwan and Japan.

ANIMAL HUSBANDRY AND PRODUCE

636.2:591.11 636.293:591.11
Cattle - Physiology.
Carabaos - Physiology.

112. A preliminary study on the serum calcium, inorganic phosphorus and cholesterol levels of cattle and carabaos slaughtered at the National Abattoir. C. C. Maza and C. M. Dizon (Bureau of Animal Industry, Mandaluyong, Rizal). *Philippine Journal of Animal Industry,* First-Fourth Quarter 1967-1969(1971), v.28, nos.1-4, p.51-56. tables. 9 refs.

Blood samples from 337 cattle and 121 carabaos were analyzed. Results showed that in cattle, age and sex have no influence on the level of serum Ca and inorganic P, but the serum cholesterol level seemed to be affected. In carabaos, inorganic P did not vary with age and sex, and sex did not seem to influence serum cholesterol level.

636.2.083 636.2.089
Cattle - Diseases and pests.
Carabaos - Diseases and pests.
Liver fluke disease.

114. Prevention and control of fascioliasis among cattle and carabaos. Pedro U. Dumag (Bureau of Animal Industry, Mandaluyong, Rizal). *Philippine Journal of Animal Industry,* First-Fourth Quarter 1967-1969(1971), v.28, nos.1-4, p.97-118. 116 refs.

The following are important in the prevention and control of fascioliasis: elimination of the snail intermediate host (*Galba viridis* and *Lymnaea rubiginosa*); preventing the animals from infection; and treatment of infected animals. In the treatment of fascioliasis, Hexachloroethane, F'Cide, carbon tetrachloride, Minel, PHP Suspension, Phenolep, Bitin-S, Bithinol and Hexachlorophene (Fascol Super) have been found effective.

636.2.084(043)
Dairy farm management.
Grazing - Experiments - Cattle

115. The effect of outdoor and indoor management and the level of concentrate feeding on the performance of dairy cows in a humid tropical environment. Victoria Caraig de Leon. College, Laguna, College of Agriculture, University of the Philippines, March 1971. xiv, 108p. tables, illus. 147 refs. (Thesis. Master of Science, Major in Animal Nutrition)

Studies made on 24 lactating cows showed that those allowed to graze had better performance than indoor animals. Their forage intake was higher and thus, had higher milk yield and liveweight gain. Also, their physiological responses and milk composition, in terms of butterfat, protein, lactose, total solids and ash content were higher. No definite trend was noted on the effect of concentrate feed intake on the volatile fatty acid content of the rumen ingesta. The better performance of cows under outdoor management can be attributed to the selective grazing and their high degree of heat tolerance.

636.4:591.16(043)
Pregnancy - Swine.

116. Palpation of the middle uterine artery of pregnant cows per rectum. Vicente L. Sicam. Quezon City, College

636.2.082 636.4.082
Insemination, Artificial - Cattle.
Insemination, Artificial - Swine.

113. The role of artificial breeding in livestock production. Juan L. Umali. *Animal Husbandry and Agricultural Journal,* July 1970, v.5, no.7, p.6, 8. table. (Read at the 15th National Livestock and Poultry Production Week Celebration, April 12-18, 1970, Cebu City)

The Bureau of Animal Industry (Manila) has establised artificial breeding centers in different provinces providing breeding service for a nominal fee. The cattle breeds recommended for propagation are the Red Sindhi, Sahiwal, Tharparker and Murrah buffalo, and for swine, Duroc Jersey, Poland China, Berkshire and Large White. These breeds are of the high meat-yield type, resistant to local livestock pests and diseases, and capable of thriving and producing under local climatic conditions. The cattle breeds are of the high milk-yield type. Studies showed that the native caraballa when crossed with a buffalo bull can produce offspring with a milk yield of 5-10 liters a day.

of Veterinary Medicine, University of the Philippines, 1971. 4ℓ. 18p. tables. 7 refs. (Thesis. Doctor of Veterinary Medicine)

Fifty-two Landrace and Large White mated sows were used in the study. Palpation of pregnant sows revealed that the middle uterine arteries gradually increased in size and fremitus developed as gestation progressed. In most cases, the fremitus of pregnant sows started on the 7th wk after mating. The earliest onset of fremitus was observed on the 3rd wk and the latest on the 12th wk. Rectal palpation to determine the presence of fremitus in early pregnancy could not be employed.

636.4:591.43
Swine, Weight and measurements of.

117. Length and capacity of the different sections of the alimentary canal of Berkjala sows. Valente Villegas (College of Agriculture, University of the Philippines, College, Laguna). *Philippine Journal of Animal Industry*, First-Fourth Quarter 1967-1969(1971). v.28, nos.1-4, p.77-79. plate, table. 1 ref.

The study was conducted on 7 mature Berkjala sows with an average age of about 5 yrs. The following data were obtained: mean length of esophagus, 43.5 ± 2.66 cm; mean capacity of stomach, 5.063 ± 0.991 kg; mean length and mean capacity of small intestine, 1700 ± 35.145 cm and 13.9 ± 0.459 kg, respectively; mean length and mean capacity of large intestine, 534.573 ± 28.503 cm and 11.604 ± 0.844 kg, respectively; and mean length and mean capacity of cecum, 24.43 ± 0.972 cm and 1.012 ± 0.144 kg, respectively.

636.4:612.616.1
Swine - Castration.

118. A study on the effect of the Russian method of castration on the meatiness of crossbred barrows. Fortunato T. Basilio and Alfredo B. Santiago (Araneta University Foundation, Victoneta Park, Malabon, Rizal). *Araneta Journal of Agriculture*, Jan.-March 1971, v.18, no.1, p.23-31. tables. 3 refs.

The Russian method which involves removal of the testicular parenchyma but retention of the epididymis and connective tissue gave higher dressing percentage and better carcass quality. However, the normal method of castration resulted in improved weaning weight, efficient feed conversion and better backfat thickness. Measurements in both methods are within the standard requirements.

636.4.084
Swine - Feeding.

119. Effects of fasting slaughter hogs on their carcass and lean cut yields. V. G. Argañosa (College of Agriculture, University of the Philippines, College, Laguna). *Agriculture at Los Baños* Jan.-March 1971, v.10, no.3, p.13.

Results of the study showed that fasted gilts had a significantly lower weight than unfasted ones, with an average shrinkage of 3.58 kg. Yield of lean cuts based on either the chilled carcass, unfasted or slaughter weights was also significantly lower in fasted gilts.

636.4.084
Swine - Feeding.

120. Limited feeding for finishing swine. R. B. Puyaoan (College of Agriculture, University of the Philippines,

College, Laguna). *Better Poultry and Livestock*, Feb. 1971, v.12, no.6, p.41-42.

Experiments showed that reducing the feed by 15-30% of the full-fed pigs resulted in carcasses with lowered backfat thickness, and increase in loin-eye area, percentage of lean cuts and carcass length. Also, reduced feed intake decreased the amount of feed to produce a kilogram gain in weight, and promoted about 20% improvement in feed efficiency.

636.4.088
Swine - Carcasses.

121. Know the yield of the different wholesale cuts of pork. V. G. Argañosa. *Better Poultry and Livestock*, March 1971, v.12, no.7, p.6-8, 10. illus.

Studies conducted by the UP College of Agriculture, College (Laguna) revealed significant variation in the wholesale cuts of hogs. The average percentage wholesale cuts of the chilled carcass weight were: ham, 19.2; loin, 16.7; shoulder, 16; and belly, 16.4. The hams and loins made up about 35.9% of the chilled carcass weight which was equivalent to 47.5% of the total carcass value. It was found that the bigger and fatter the animals, the lesser was the carcass lean cut yield and the higher percentage yield of the belly and fat trimmings. The proportion of the other cuts was relatively not affected.

636.4.088
Swine - Carcasses.

122. Meat animals and carcass evaluation: II. The use of graphing paper, linear measurements and planimeter in measuring the area of the longissimus dorsi muscle of pork carcass. E. C. Magboo and V. G. Argañosa (College of Agriculture, University of the Philippines, College, Laguna). *Philippine Agriculturist*, Dec. 1970-Jan. 1971, v.54, nos.7-8, p.331-337. tables, illus. 10 refs.

The study is based on the tracings of 325 longissimus dorsi muscles taken from the surface of the 10th rib cross section of the loin. Statistical analysis showed that there was no significant difference between the planimeter and ordinary graphing paper readings in estimating the area of the longissimus dorsi muscle regardless of its size. Average length x average width method gave a significantly higher estimate than the planimeter and graphing paper methods. Estimates of the area by 3 different persons using graphing paper showed significant differences with repeatability estimates of 0.98, 0.99 and 0.88, respectively.

636.4.088
Swine - Carcasses. Swine, Weight and measurements of.

123. Carcass values of Berkjala barrows. Valente Villegas (College of Agriculture, University of the Philippines, College, Laguna). *Philippine Journal of Animal Industry*, First-Fourth Quarter 1967-1969(1971), v.28, nos.1-4, p.93-95. 1 ref.

The study was conducted on 5 Berkjala barrows aged 2 yrs 9 mo. Data on the following are presented: liveweight, dressed weight and dressing percentage; amount of lean and bones in dressed carcass and their percentage in dressed weight; and weights and measurements of shed blood, lungs, heart, liver, kidneys and spleen.

636.5:591.39
Eggs - Hatchability.

124. The influence of mechanical shocks on the hatchability of eggs. Pablo B. Agcanas (Bureau of Animal Industry, Manila). *Philippine Journal of Animal Industry,* First-Fourth Quarter 1967-1969 (1971), v.28, nos.1-4, p.41-43. table. 3 refs.

A total of 17,837 White Cornish and White Rock eggs were used in the study. Results showed that grading of hatching eggs with the use of a mechanical electrical grades does not impair hatchability. Brown-shelled eggs were found more tolerant to shock and bumps due to their thick shells.

636.5.084
Poultry - Feeding - Experiments.

125. Observations on the feeding efficiency of layers. Pacifico N. Ronan, G. H. Luztre and A. G. Navarro (Bureau of Animal Industry, Mandaluyong, Rizal). *Philippine Journal of Animal Industry,* First-Fourth Quarter 1967-1969(1971), v.28, nos.1-4, p.33-39. tables. 11 refs.

Results of various studies revealed that the significant differences in the amount of feeds required to produce a dozen eggs are greatly influenced by the following factors: use of feed supplements; quality and quantity of protein; types and roofs of poultry house; and management practices.

636.5.085(043)
Poultry - Feeding - Experiments.

126. Studies on broiler production. VII. Effects of "Tylan 10" (at different levels in the feed) on broilers. Amado S. Gonzales, Jr. Quezon City, College of Veterinary Medicine, University of the Philippines, Jan. 1971. 4*l*. 20p. tables. 15 refs. (Thesis. Doctor of Veterinary Medicine)

Feeding experiments conducted on "DEKALB, Sr." broiler chicks showed that the addition of 50 and 100 g Tylosin/ton feed promoted weight gain and reduced mortality rate. However, no significant effect on feed conversion was observed.

636.58:591.39
Eggs - Hatchability.

127. The effect of electric current interruptions on the hatchability of eggs. P. N. Ronan, F. C. Bandong and A. G. Navarro (Bureau of Animal Industry, Manila). *Philippine Journal of Animal Industry,* First-Fourth Quarter 1967-1969(1971), v.28, nos.1-4, p.45-49. tables. 2 refs.

Experiments with 1050 pieces White Leghorn hatching eggs showed that interruptions in electric current affected the hatching performance of fertile eggs under incubation. Incubation with interrupted electric current with 62% RH at 90°F gave 66.4-70.9% hatchability and 29.10-35.3% embryonic death, while incubation with uninterrupted electric current gave high hatchability (85.15%) and low embryonic death (14.81%). Periodic cooling of incubated eggs did not improve hatchability.

636.58:591.39
Eggs - Hatchability.

128. The influence of time of lay on the fertility and hatchability of eggs. Abelo G. Navarro, P. N. Ronan and G. H. Luztre (Bureau of Animal Industry, Manila). *Philippine Journal of Animal Industry,* First-Fourth Quarter 1967-1969 (1971), v.28, nos.1-4, p.19-22. tables. 10 refs.

Observations were made on hatching

eggs from breeding flock of White Leghorn (Ghostley) and White Rock (Lawton) chickens. It was found that eggs laid in the morning had slightly higher fertility and hatchability than those laid in the afternoon; however, the difference was insignificant. Thus, egg fertility and hatchability are not influenced by the time of lay.

636.58:636.08
Poultry - Performance records and registration.

129. A study of the influence of the date of hatch, low temperature brooding and open-air growing and laying quarters on the performance of S. C. White Leghorn and New Hampshire pullets with particular reference to partial molt, roup and general physical condition. P. B. Agcanas and T. M. Capulong (Bureau of Animal Industry, Mandaluyong, Rizal). *Philippine Journal of Animal Industry*, First-Fourth Quarter 1967-1969(1971), v.28, nos.1-4, p.1-13. tables. 8 refs.

The study revealed that the best times to hatch eggs under Alabang conditions are from Dec. to May and the best months for a bird to start its production period are June, Aug., Oct. and Dec.

Data on the final average weights of chicks and pullets, feed consumption, percentage mortality, minimum age at sexual maturity and average production of S. C. White Leghorn and New Hampshire are presented.

636.58.082
Poultry - Breeding.

130. Upgrading the native chickens in the Philippines. Pablo B. Agcanas (Bureau of Animal Industry, Mandaluyong, Rizal). *Philippine Journal of Animal Industry*, First-Fourth Quarter 1967-1969 (1971), v.28, nos.1-4, p.23-31. tables.

The results of the upgrading of native chickens for the fifth and sixth filial generations and the inbreeding of the third filial generation with the third inbred generation are discussed. The S. C. White Leghorn grades in the fifth filial generation gave an average egg production of 217.53. Also, there was a noticeable decrease in the body size of the S. C. White Leghorn but not of the New Hampshire. Inbreeding of the third filial generation beyond the second inbred generation caused decreased egg production and smaller egg size.

637.17:637.127
Milk, Carabaos' - Composition.
Milk - Composition.

131. Carabao milk: VI. Its chloride, calcium and phosphorus contents. Clara L. Davide and Leonora E. Domingo (College of Agriculture, University of the Philippines, College, Laguna). *Philippine Agriculturist*, Feb.-March 1971, v.54, nos.9-10, p.432-438. tables. 17 refs.

Analysis of 99 milk samples obtained from 15 carabaos revealed that regardless of the stage of lactation, excluding colostrum, carabao's milk contains on the average 82.76 mg chloride/100 ml, 218.20 mg Ca/100 ml and 177.25 mg P/100 g. These values are generally higher than those of buffaloes' and cow's milk, indicating that carabao's milk is a good source of Ca and P.

637.17:637.142
Milk, Carabao's. Milk, Evaporated.

132. Canned carabao milk feasible. *Animal Husbandry and Agricultural Journal*, July 1970, v.5, no.7, p.9.

Studies conducted by the Bureau of Animal Industry (Manila) indicated the

feasibility of canning evaporated carabao milk. Some milk manufacturing companies as well as the Food and Drug Administration, and the Food and Nutrition Research Center (NIST) have found the evaporated carabao milk to be of high quality. The Bureau of Animal Industry jointly with the Marikina Milk Industries agreed to manufacture 500 cans evaporated carabao milk for market testing.

637.451:591.39(043)
Eggs - Hatchability.

133. A study on the effects of cobalt-60 radiation on the embryonated chicken eggs of White Leghorn, Kimber strain. Catalino T. Rasa. Victoneta Park, Malabon, Rizal, Araneta University Foundation, April 1971. 8ℓ. 53p. graphs, tables, illus. 20 refs. (Thesis. M. S. in Agriculture, Major in Animal Husbandry)

Results of the study showed that Co-60 radiation at 250 and 450 rad had no lethal effects on the embryonated chicken eggs, effecting 83.2-89% hatchability. The effects on the hatching eggs, if any, is believed to be genetical and biochemical. Radiation dose of 650 rad proved lethal to the embryos and growth rate of chicks was disturbed. No effect was observed on the rate of egg production, although multiple-egg laying was suppressed. It was also noted that radiation did not destroy the ovaries of the embryos that survived irradiation.

FISHERIES

639.21.03(914)
Fish industry and trade.

134. The development of freshwater fisheries industry in the Philippines. Serapio A. Bravo. *Animal Husbandry and Agricultural Journal*, May 1970, v.5, no.5, p.19-23. tables. 6 refs.

Based on the analysis of the present status of the industry, the following are recommended: development and rehabilitation of freshwater or inland fisheries; extensive fish cultivation of suitable fish species; massive fish stocking of inland waters; and government support to produce the necessary fish seeds for dispersal and dissemination. A list of the indigenous true freshwater fishes and the introduced freshwater pondfishes is presented.

639.222.21:639.31:591.134
597.553.12:591.134
Fishes - Biology.

135. Weight-length relationship and growth of Chanos chanos (Forskal) grown in freshwater ponds. Rogelio O. Juliano, Aloysius U. Baes, Rodolfo F. Ventura and Alfredo O. Isidro (College of Fisheries, University of the Philippines, Quezon City). *Natural and Applied Science Bulletin*, July-Dec. 1970, v.22, nos.3-4, p.113-131. graphs, tables. 8 refs.

Data were obtained on milkfish with size range of 80-200 mm, for a culture period of 2-5 mo. Results showed a trend close to isometric growth of fish within the size range of fish studied. Slow or fast rate of growth did not alter significantly the weight-length relationship of the fish. The rate of growth of fish was slow in the densely populated pond (one fish/0.565 cu.m H_2O). It is believed that a stocking rate of one fish/cu.m H_2O is not inhibitory to fish growth provided food supply is abundant through intensive fertilization. Mixing of carps with milkfish also did not alter growth and weight-length relationship.

CHEMICAL AND ALLIED INDUSTRIES

663.1 582.282.23:581.09
Yeast. Yeasts - Isolation & purification.

136. The development of yeast strain and/or isolates for high alcoholic fermentation temperature. Arsenio S. Roxas and Norma P. Aguila. *Sugar News*, April 1971, v.47, no.4, p.166-169. tables.

Three strains of *Saccharomyces cerevisiae* and a strain of Magne yeast were subjected to a series of invigoration in pineapple juice medium and were isolated by streak method. 29 yeast isolates were obtained, 11 of which were selected for performance test. Of these isolates, 3 acclimatized yeasts, namely, Y-17, Y-24 and Y-26, were tested under factory conditions. It was observed that the fermentation efficiency of the 3 yeast isolates was low during the early fermentation runs but was greatly improved as the isolates became adapted to existing factory conditions. The highest fermentation efficiency observed was on isolate Y-26 (83.44%) incubated at 40°-41°C.

664.15
Molasses.

137. The relative effect of the organic and the inorganic non-sugars of mixed juice to the formation of the corresponding final molasses. Juan C. Fandialan and Agnes P. Guerrero. *Sugar News*, April 1971, v.47, no.4, p.158-160. tables.

Composite samples of cane mixed juice and the corresponding final molasses were analyzed for non-sugar content at the laboratory of the Canlubang Sugar Estate (Laguna). Results indicated a positive relationship between the non-sugar content of the mixed juice to formation of the corresponding final molasses. It was found that formation of molasses is influenced more by the amount of inorganic non-sugar than that of organic non-sugars. Analysis of the inorganic non-sugar is suggested to determine the constituents that would directly affect molasses formation.

664.83.047
Yams (Dioscorea).

138. The preparation of ubi powder. Luz A. Afable (Bureau of Plant Industry, Manila). *Philippine Journal of Plant Industry*, First-Second Quarter 1970 (1971), v.35, nos.1-2, p.19-25. tables. 20 refs.

A laboratory method of preparing yam powder from the purple variety of *Dioscorea alata* is described. The process requires complete cooking of unpeeled tubers in water by atmospheric boiling. Rehydration test showed that a uniform swollen mass was obtained upon addition of 160 cc of boiling H_2O to 50 g yam powder. The rehydrated product when combined and blended with other foods was acceptable in color, flavor and consistency.

664.85:641.4
Coco honey - Preparation.
Coco honey - Storage.

139. Development and storage stability of coco honey prepared from skimmed coconut milk. Olympia N. Gonzalez, Aurea V. Lontoc, Leogarda B. Dimaunahan and Nieves C. Rodriguez (National Institute of Science & Technology, Manila). *Philippine Journal of Nutrition*, Jan. March 1971, v.24, no.1, p.1-9. graphs, tables. 9 refs.

Observations showed that utilizing skimmed coconut milk or skimmed coconut milk with 25 ml/liter exhibited very slight changes in acidity, pH, TBA

values (rancidity) and total soluble solids content during one-yr storage at room temp., except for color changes attributed to non-enzymatic browning.

664.85.036.5
Coco chips. Packaging materials.

140. Development and storage behavior of sweetened coconut chips packed in poly film bags and tin containers. Aurea V. Lontoc, Olympia N. Gonzalez, Leogarda B. Dimaunahan and Susan Chipeco (National Institute of Science & Technology, Manila). *Philippine Journal of Nutrition,* Jan.-March 1971, v.24, no.1, p.10-20. graphs, tables. 14 refs.

Results of analyses indicated that the kind of packaging materials used did not affect the quality of chips. Howeve, the length of storage affected significantly the quality of the chips. Storage period for 6 mo. affected the flavor, color and crispness of the coco chips. Flavor changes were attributed to the oxidative rancidity of the fat content. Packing with anti-oxidant and inert gas minimized rancidity and increased the keeping quality of the product.

WOODWORK AND TIMBER INDUSTRY

674.03:545.844
Shorea - Chemical composition.

141. Chromatographic examination of methanolic extracts of wood of ten Shorea species (Dipterocarpaceae). S. M. Fanega and E. I. Mule (FORPRIDECOM, College, Laguna). *Philippine Lumberman,* March 1971, v.17, no.3, p.16, 18, 20, 20-B. tables, illus. 17 refs.

The methanolic wood extracts of 10 *Shorea* species were chromatographed on paper using one-dimensional-descending technique with distilled H_2O and aqueous NaCl solution as developer. The chromatograms were examined under ultraviolet light with or without exposure to NH_3 vapors, sprayed with ferric chloride-ferricyanide and diazotized p-nitroaniline reagents, and dipped in tetrazotized benzidine. Remarkable differences were observed in the appearance of the water- and salt-developed chromatograms of the species studied, indicating that further paper chromatographic studies may offer a means of distinguishing closely similar species and reveal other chemical possibilities.

674.03:620.17
Wood - Testing.

142. Nail withdrawal and lateral resistance of some Philippine woods. A. M. Gruela, R. Z. de la Cruz and E. B. Espiloy, Jr. (FORPRIDECOM, College, Laguna). *Philippine Architecture, Engineering & Construction Record,* Jan. 1971, v.17, no.10, p.18, 20, 23-25. graphs, tables, diagr., illus. 11 refs.

Results of tests done on 5 species of Philippine woods showed that the size of nail and sp. gr. of wood components significantly influenced the lateral and direct withdrawal resistance of nails. For a given nail size, the stiffness at 0.01 in. slip, maximum strength of joints and withdrawal resistance are directly proportional to the sp. gr., and for a given sp. gr., the stiffness, strength and direct withdrawal resistance are directly proportional to the power of the diameter of the nail.

674.03.04 582.825:674.04
Wood - Drying. Shorea.

143. Air seasoning of guijo Shorea guiso (Blanco) Blume . Ernesto B. Ordinario. *Wood Preservation Report* (Forest Products Research & Industries Development Commission, College, Laguna), March-April 1971, v.6, no.2,

p.1-6. tables. 9 refs.

Air seasoning of one- and 2-in. wood samples required an average of 181 and 207 days to reach the average minimum moisture content (MC) of 16% and 17.5%, respectively. Also, one- and 2-in. boards averaged 28 days and 58 days, respectively, to reach "shipping dry" condition (30% MC). To minimize drying defects in guijo lumber, it is essential to stack the lumber properly. Partial air-drying is recommended before kiln-drying to the final MC. Guijo is classified as difficult to dry.

674.243.002.2
Plywood. Veneers and veneering.

144. Kaatoan bangkal [Anthocephalus chinensis (Lamk.) Rich. ēx. Walp] for veneer and plywood manufacture. P. M. Manzo, R. C. Eala and A. P. Bati (FORPRIDECOM, College, Laguna). *Philippine Lumberman,* April 1971, v.17, no.4, p.30-32. tables. 7 refs.

Studies indicated the possibility of using kaatoan bangkal for veneer and plywood manufacture. Acceptable quality veneers of 3.25 and 1.63 mm thicknesses can be produced using lathe settings similar to those used for lauan. The severity of drying defects was commercially acceptable. The veneers can be glued easily with urea-resin adhesive.

PAPER AND PULP INDUSTRIES

676.1.02.03 676.3
Wood pulp. Gmelina arborea.

145. Prospects of Gmelina arborea for pulp and printing papers. C. H. Ballon, J. O. Escolano, E. P. Villanueva, O. B. Tadena, R. V. Visperas and C. P. Estudillo. *Philippine Forests,* March 1971, v.5, no.1, p.12-15. tables. 5 refs.

Experiments showed that *Gmelina arborea* has good potentials as pulpwood indicated by its relatively high yield of kraft pulp (57.7%) and a low chemical requirement of its pulp for bleaching. The bleached pulp yield varied from 94.4 to 97.7%. 100% bleached kraft pulp of *G. arborea* produced good quality of printing and writing paper. Although experimental book and onionskin papers from 100% *G. arborea* pulp met the US Government Paper Standard Specifications, the papermaking stock for these types of paper requires the stronger blend of the hardwood pulp with the long-fiber softwood or abaca (*Musa textilis* Nee.) pulp to improve the tearing resistance and/or folding endurance of the paper sheets.

676.15:676.3 676.15:582.949.1
Wood pulp. Gmelina arborea.

146. Reforestation tree makes good quality paper. Cora L. Bondoc (FORPRIDECOM, College, Laguna). *Reforestation Monthly,* Feb.-April 1971, v.10, nos.14-16, p.10.

Studies conducted at FORPRIDECOM showed that the pulp wood from exotic melina gave high yield of kraft pulp and the chemical requirement for bleaching was low. 100% bleached pulp produced good-quality bond and writing papers. Also, the addition of long-fiber pulp improved the tensile strength property and produced onionskin and book papers which are within the standard specifications. Blending of melina pulp with softwoods or abaca is recommended to improve the commercial quality of the paper.

LIST OF PUBLICATIONS ABSTRACTED

NOTE: Listed hereunder are the publications from which pertinent articles are abstracted in this issue.

A. PERIODICALS

Acta Medica Philippina

Agriculture at Los Baños

Animal Husbandry and Agricultural Journal

Araneta Journal of Agriculture

Better Poultry and Livestock

CLSU Scientific Journal

COMVOL Letter

Forest Products Research & Industries Development Commission
- Technical Note
- Wood Preservation Report

Journal of the Geological Society of the Philippines

Journal of the Philippine Medical Association

Journal of the Philippine Medical Women's Association

Natural and Applied Science Bulletin

Nucleus

Philippine Agriculturist

Philippine Architecture, Engineering & Construction Record

Philippine Atomic Energy Commission [PAEC (D)]

Philippine Forests

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